DOCUMENT RESUME

ED 463 750 IR 021 172

AUTHOR	Warger, Thomas, Ed.
TITLE	The EDUTECH Report, 2001-2002.
INSTITUTION	EDUTECH International, Bloomfield, CT.
ISSN	ISSN-0883-1327
PUB DATE	2002-00-00
NOTE	100p.; Published monthly. For the 2000-2001 issues, see ED 453 821.
AVAILABLE FROM	EDUTECH International, 120 Mountain Ave., Bloomfield, CT 06002-1634 (one year subscription: $97; also available through e-mail in HTML format). Tel: 860-242-3356; e-mail: feedback@edutech-int.com.
PUB TYPE	Collected Works - Serials (022)
JOURNAL CIT	The EDUTECH Report; v17 n1-12 Apr 2001-Mar 2002
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Computer Networks; *Computer Uses in Education; *Educational Technology; Faculty Development; Higher Education; Information Policy; Information Technology; *Newsletters; Online Systems; Technology Integration
IDENTIFIERS	Technology Role

ABSTRACT

This document consists of 12 issues of the "EDUTECH Report." The newsletter's purpose is to alert faculty and administrators to issues in educational technology. Each issue contains two feature articles, a page of news briefs, and a question and answer column. Issues also contain brief quotations on education technology topics. The following cover articles appeared between April 2001 and March 2002: "Digits and Paper"; "Knowing Your Techies"; "Perspectives on Privacy in Campus IT"; "Making Better IT Decisions"; "We Have All Our Courses Online. Now What?"; "Hot Issues 2001-2002: Making Headway"; "Network Trouble"; "Does the Medium Matter?"; "Technology in the Library"; "Faculty Development and Information Technology"; "Behind the Portal"; and "The Origins of IT Policy." (AEF)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 463 750

The EDUTECH Report, 2001-2002.

Thomas Warger, Editor

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

L. H. Fleit

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

IR 021 172

BEST COPY AVAILABLE

April 2001

Volume 17
Number 1

THE EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Digits and Paper

The division of academic culture into two or three, as set forth by C. P. Snow, now has a pale but disquieting echo. The schism is between the enthusiasts for digits and the stalwarts for paper. Although (or perhaps because) we think all faculty have participated in the Internet world of "information," some of them are increasingly uncomfortable with the effects it has had on scholarship. In some cases – few but certain, they are forbidding students to cite any Internet sources in papers they write. These partisans accuse their campus library of abandoning the book in favor of electronic information, which they equate (at least in arguments) with the web at large. In the other camp, some are asking that the library drop paper subscriptions and book acquisitions in their disciplines in favor of online sources. The quarrel tends to be bi-lateral, proponents of each extreme castigating the librarians but failing to acknowledge that the real differences in views is intramural to the faculty.

The reasonable ground, of course, is elsewhere. We have digits *and* paper, not digits *or* paper. We have problems and questions to resolve, but this is not about a choice between alternatives. Many people are simply not involved in the dispute, but they need to be more aware of it because the collateral damage to academe is potentially very serious. Library collection development is at risk of being held hostage in the battle. If students whose entire lives have been lived in the digital era decide to rebel actively against faculty they find unsympathetic, the curricular fall-out could be devastating. Early evidence of both can be seen already on many campuses. A student of medieval history tells a faculty committee that he does not use his computer for any purpose other than word processing, that the only worthwhile sources are paper, and

continued on page 3

"Computers enable profound increases in the scale of communications, over space and time. Without sufficient measures for organizing all this stuff being cast around, we inundate people as much – or more – than we help them get the answers they're seeking, when they need them. Establishing the 'spaces between' the information – the context, the relationships – as explicit content, the system can take the context into account, and we can develop strategies and mechanisms that help fit answers into context. We can help fit collections of answers into stories."

Ken Manheimer
"An Interview with Paul Everitt and Ken Manheimer of Digital Creations, publishers of Zope"
by Daniel Chudnov
www.oss4lib.org
March 2001

NEWSBRIEFS

RATINGS OF E-LEARNING PUBLISHERS

Lguide, an independent e-learning research and consulting firm, has announced the release of its research report, "E-Learning Course Publishers: A Comparative Analysis and Industry Directory." Report features include comparative evaluations of business skills, desktop applications, and professional IT training; rankings by content and delivery quality, analysis of e-learning courses and future trends; evaluations for twenty-five top e-learning publishers; and a directory listing company and basic catalog information for hundreds of e-learning publishers.

For more information, see: www.lguide.com.

From the Syllabus newsletter, "e-News, Resources and Trends." March 20, 2001.

WIRED CLASSROOMS

A recent survey suggests the rate at which colleges are wiring their classrooms to the Internet lags behind their primary and secondary school counterparts, but experts say broader access to technology on college campuses makes up for the difference.

New data show 64 percent of colleges say they have Internet access in their classrooms, up from 49 percent in the 1999-2000 academic year, according to a survey done by education research firm Market Data Retrieval. Elementary and high schools have wired 63 percent of their classrooms, up from 3 percent in 1994. The K-12 efforts are funded in part by the federal e-rate program, which provides discounts for Internet connections.

From "Survey Shows Mixed Use Among Wired Schools," by Rebecca S. Weiner, *New York Times*, Cybertimes Education, April 18, 2001.

INTERNET STUDIES

So just what do Net researchers actually study? Skeptics might wonder how intellectual inquiry can keep pace with the technology. The field has already produced some landmark works – including Sherry Turkle's *Life on the Screen: Identity in the Age of the Internet* (Touchstone, 1995) and three imposing volumes of economic and sociological analysis in *The Information Age* (Blackwell Publishers, 1996-98), by Manuel Castells, a professor of city and regional planning at the University of California at Berkeley. But a glance at recent papers suggests that not many scholarly works published before about 1999 qualify as formative.

"Internet Studies 1.0: a Discipline Is Born," by Scott McLemee, *The Chronicle of Higher Education*, March 20, 2001.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

Digits and Paper...

continued from page 1

that the campus library is shedding books – and its historic mission – in order to subscribe to online services and sources that are inherently inferior. Now, where did he get those ideas?

Difficult and easy

Research is hard. Finding information, while hard enough in itself, is not the end of the difficulty; it is more nearly just the beginning. We follow connections, look for evidence, new ideas, old ideas that are foundations. Then we begin the work of thinking about how our ideas need to change. None of that is easy or certain. A major piece of our method for coping with the challenges of research is to rely on stability in sources. Work builds on work over time. The contents of our libraries incorporate that progress in the tangible form of books and other paper. These are the myths that sustain us.

Following connections chosen by others is relatively easy. For this reason alone, the web gets criticized all the time. In most discussions of online information the structure and myth of the web substitute for the totality of the Internet, and so it is this inescapable perception that we must confront.

Surfing – the transit from a web link to its target and then from a link on that page to another until the path seems no longer useful – is deceptively easy. The genius of hyperlinking is that it mimics one of the enduring facets of scholarship: the importance of being able to summon one text from the reading of another. The appeal of web links is their economy of effort in connecting a place in a text to one in another. We view them with some degree of unease, though, when we think about their promiscuity: any connection is possible. In fact, we do not always get an explanation of why the link was set or what the new source is. Sources are too easily eclipsed when information is electronic, much the way a computer discards previous "states" when working through its processes and calculations. Origins, identities, authority (i.e., who wrote it), and the logic of connection are too easily lost.

> *The reality of most research is that all too many promising leads turn out to be disappointing. Many citations lead to works that do not contain what we hoped for when making the connection. Others are derivative – repeating existing information without adding anything significant or new.*

The art of evaluation

It used to be that students did not face the task of evaluating scholarly sources until they were well along in graduate school. Until that point, teachers ruled over sources, through syllabi, specification of secondary sources, placement of library reserves, selection of slides, musical scores, legal cases, engineering problems, and so on. Only at the most advanced level did we confront needing to decide whether the contributors to a Festschrift (a collection of essays honoring a living or recently deceased scholar) are truly the leading lights in a field or just the friends and cronies of the person in question. A fine distinction, but an important one.

The reality of most research is that all too many promising leads turn out to be disappointing. Many citations lead to works that do not contain what we hoped for when making the connection. Others are derivative – repeating existing information without adding anything significant or new. Some are just poorly done and so do not add reliably to our knowledge. Until now, only advanced scholars knew or cared much about these distinctions, and most students were simply shielded from them.

Junk

The web-driven movement to online sources of information has brought the problem of evaluation to even the youngest school children. It has done this by removing much of what used to serve as filters, guidance, and constraints of various other kinds (including plain brown wrappers). Information on the web is probably 99 percent junk: inane chat, self-promoting verbiage, pornography, endless repetitions (copies) of stuff from elsewhere. The remaining one percent, however, has scholarly value, and because the quantities are huge even one percent is an overwhelming amount.

Is it all now "information"? That term, infiltrated from computer science, has imposed itself to cover the inadequacy of terms like "printed materials" to cover digits that might not ever find their way to a (computer) printer. Such is the US census, but so also all of ancient Greek literature (in the form of the *Thesaurus Linguae Graecae*). Many

continued on page 6

The videoconference teaching facility is typically a re-purposed classroom or other space converted to be suitable to originate and receive audio and video enabling groups of people to interact across a distance. The normal furniture and classroom trappings are supplemented by the addition of interactive video and sound equipment. It is also multimedia-enhanced with devices such as a VCR, document camera, computer, and an electronic whiteboard. The room is generally modified to some degree to improve its acoustics and lighting.

All of these elements are designed to create the conditions for a successful interaction among people who would be together in the same room if circumstances permitted. In the event, they need to approximate "presence," so that instructional activities can take place without the experience being dominated or unduly skewed by the technology used to make the connection.

Technologies involved

The equipment begins with essentially ordinary a/v equipment: cameras and microphones, CRT monitors, and other display peripherals. Newer presentation media might replace some of the old standards: a document camera used instead of a blackboard or whiteboard or a display capable of being transmitted to the remote site at the same time as it is being viewed at the originating end.

The audio and video from all these sources needs to be selected, compressed, and processed for transmission. Those signals are fed into a codec (coder-decoder) and from there transmitted through a telecommunications interface to a telecommunications infrastructure that connects to one or more remote sites.

State of the art

Technologies available today are capable of providing "natural" motion and sound for the normal range of classroom activities. It is no longer necessary to tolerate motion that is interrupted by transmission lags or that is not synchronized with the sound. Speakers' gestures and walking movements fall within that range of capability. Persons in all parts of the classroom should be able to speak in normal tones and be heard clearly at the remote end.

> *All of these elements are designed to create the conditions for a successful interaction among people who would be together in the same room if circumstances permitted.*

The codecs from all major manufacturers, vendors, and integrators are based on international standards, though these usually also include proprietary extensions and additions. The standards ensure basic compatibility among makes and models. The proprietary enhancements take effect when matching equipment is used on both (or multiple) ends of a conference but drop out when connecting different units, even in some cases those that are older models from the same manufacturer.

After more than a decade of minimal change in codec technology, the past twelve months has brought very substantial advances from all of the manufacturers. The major breakthroughs have been in the communications protocols supported. Until now ISDN has been far and away the leading form of communication among videoconference sites. Now IP is making its appearance, initially for connections within a building or campus, but increasingly over longer-haul data lines. ATM and v.35 interfaces are now also commonly available.

Codecs fall into two categories: "appliances" based on specific processor chips and PC-based that use a standard microcomputer's processor. The appliances have advantages in hardware independence and immunity to failures caused by other functions on a PC. The PC-based codecs are better able to provide interoperability between computer applications at the originating and remote sites.

Most equipment lines are also scalable from single-user to auditorium sizes. In general, a product available for a room-sized system will have variants suitable for smaller and larger settings.

It's about pedagogy

The choice and configuration of equipment needs to be dictated by the teaching situations and methods to be supported. Obviously, a music lesson and an auditorium lecture will require substantially different deployments of equipment.

The common experience of those who teach in a videoconference facility is to begin by making minimal adaptations to normal classroom style and methods – much the way the first television shows were vaudeville or stage plays performed in front of a camera. After the novelty has worn off, the instructor realizes that even with good sound and pic-

nected Classrooms

true rendition substantial changes in pedagogy are needed: the medium really does need a different approach in order to be most effective. At this stage of experience, the instructor begins to make more use of the peripheral a/v equipment and to prepare more instructional aids and materials in advance. This is also, unfortunately, the beginning of the need for specialized assistance from instructional designers, media producers, operating assistants and other technical personnel.

Full involvement in videoconferenced instruction (as opposed to occasional use) also reveals the limits of the traditional, cottage-industry model of the teaching profession. Now, each instructor is at the same time subject specialist, course designer, lecturer, discussion leader, test maker and grader, and student advisor. Technologically mediated teaching opens questions about the possibility and desirability of expecting one person to be capable of doing all those tasks with quality. Once it is possible to connect to "guest" specialists for lectures or lab demonstrations, thought turns to specialization according to components of the work of instruction.

A more subtle barrier to change in teaching methods is that while virtually all faculty sincerely want to teach better and to be open to new ways, their experience in graduate school and after does not prepare them to understand just what does make their teaching successful and what they do well and poorly. As a consequence, when they set out to make substantial changes they do not have the experience to analyze how they already teach and how to change.

And support

Training for interested faculty is often ad hoc, one-on-one and limited to coverage of "button-pushing." The usual result is that after a few fumbling attempts, the instructor's enthusiasm is drained away and frustration with the transition to comfort with the equipment and teaching environment mounts. On many campuses, videoconference facilities not strictly required for distance learning tend to be seriously under-used. Lack of faculty training and scarcity of technical support are leading reasons for that near-abandonment.

Technologically mediated teaching opens questions about the possibility and desirability of expecting one person to be capable of doing all those tasks to an optimal quality.

The other significant limitation on faculty success is the reality of limited time to devote to making the necessary changes and acquiring the practice needed to change teaching methods. The transition appears deceptively easy at the outset. The actuality of doing it to a high and consistent quality is much more difficult.

Good support consists of thorough technical orientation (the button-pushing), usage-oriented coaching and support, assistance with media production, and the regular and repeated opportunity to compare experiences with other faculty going through the same process.

Facility design

Only against the background of consideration of pedagogical factors can a good videoconference facility be properly conceived.

Sound and video quality are paramount but are not exclusively dependent on the choice of hardware. Room preparation is very important. Most rooms will need acoustical dampening: a carpet on the floor and perhaps some sound-absorbing panels or textiles on the walls. Additional lighting to fill in the relatively darker zones that are not so apparent in the room but do show up on camera is also very helpful. After some use of the room, some further modifications might be necessary. The full range of needs is nearly impossible to assess in advance – even for an experienced consultant.

Human comfort is another critical factor for success, and one too often ignored. The equipment and supplemental lighting must not over-burden the HVAC capacity available for the room, as that utility is very costly to improve. A room that is too cramped and hot will not be used very often.

Careful thought needs to be given to the nature and complexity of in-room controls. An infrared controller is adequate for camera and microphone controls, but not for operation of additional devices. An a/v control panel will handle all the equipment in the room but might prove too cumbersome for the instructor. Some compromises will be necessary, and probably some costs incurred for in-room operating assistants, particularly when multiple peripherals are used.

An excellent resource is the Videoconferencing Cookbook: www.vide.gatech.edu/cookbook2.0. TW

Digits and Paper...

continued from page 3

have adopted the term "information" in this new guise, but others wince visibly at its mention – for them it ranks with data, down the food chain a long way from knowledge and wisdom.

Students seem oblivious, with just rare exceptions, to such semantics. Nor do they see their unfettered access to web documents as a problem. This is, after all, the cornucopia that everyone who has ever entered a library has hoped for. Instead, the problem falls to the teachers. They are more likely, though not always, to be more aware of the problems posed by the promiscuity of hypertext links and the materials turned up in research by the surfing method. And then there is a more subtle problem: the web cuts the teacher out of the role of guide and gatekeeper for information. That fact is subversive of long-standing educational practice and the ethnographically dominant status of teachers with respect to students.

The challenge of control

Teachers are in a tough bind: effective evaluation of sources (like "critical thinking") is not the matter of just one afternoon's lecture. This is a large addition to the burden of teaching. At the same time, the prospect that students will (and do) now choose their own sources – good, bad, or indifferent – drags faculty to new ground at every turn. After the curricular and cultural wars of the past thirty years, now comes a fundamental challenge to the faculty's control of academic content in the first place.

Those faculty who are uncomfortable with student papers that contain only URL citations are not wrong to worry. Retreating to paper as a guarantee of better information might have some short-term tactical advantages, but the flow of the battle seems bound to sweep away that refuge. Coping with the melee of sources and the new independence of students are needs faculty cannot hope to avoid.

And what of the library? It used to be the bulwark of the faculty's control of sources. Now it is well on its way to becoming a proportionally minuscule part of the "information" landscape. Its role has already shifted from primary provider of documents (books and periodicals) to a more generalized broker of access to the impossibly large heap of traditional and new materials. Most librarians are farther along in adjusting to this change than are either faculty or students – both of whom respect and use the library less than in the past.

The prospect that students will (and do) now choose their own sources – good, bad, or indifferent – drags faculty to new ground at every turn. After the curricular and cultural wars of the past thirty years, now comes a fundamental challenge to the faculty's control of academic content in the first place.

Transience

Compounding the unsettling effects of students' ability to wander in the vast terrain of online sources is the very real problem of the transience of citations of electronic documents. There are numerous reasons for this phenomenon.

Web sites are constantly re-organized, with insufficient care to the users' stake in finding the same things twice. Also, web pages posted by individuals, as opposed to organizations, are distressingly subject to being abandoned or simply forgotten by the person who posted them. In those instances, there is often noone to intervene when a server is replaced or other technical changes are made that endanger continued availability of the documents.

And, all too many resources disappear for strictly commercial reasons. Online journal aggregators sometimes do not or cannot renew a license agreement with a publisher. Most newspapers post only (selected) articles from each day's "paper," and then only keep those online for that one day – resulting in a dead link just twenty-four hours later.

These are all very real disadvantages that digits present relative to paper publication. To be fair, the world of online information is still new and evolving quickly, but the problems of transience will have to be resolved, or they will cause serious harm to the conduct of scholarship.

Plagiarism

Another subversive product of immanent documents floating in uncontrolled channels of circulation is the copied "paper." Rumors of term papers on file in fraternities have long been a staple on campuses. But now the web offers commercial sources of these documents – an industry of plagiarism. For those already concerned about the effect of electronic information on scholarship, the ease of copying without a trace of origin is a hard blow. We can only speculate regarding how much more prevalent plagiarism might be now, compared to formerly.

This raises some interesting questions about how we have survived in the past. In part, the physical challenge of copying books or even typed papers has probably spared us some intellectual fraud. On the other hand, it might also be true that we were less vigilant for knowing that an extraordinary effort was required to perpetrate it. But who knew who was actually the author of documents written outside class, especially when the assignment did not involve the instructor viewing any of the work in progress? And what degree of aid to plagiarism is the repetition of the same assignments year after year in a course? Are the topics so perfect, are they too unrelated to classroom instruction to bother changing to fit each semester's natural variation in course focus, or is this repetition just the instructor's laziness? Only a photographic memory stands as a hedge against accepting plagiarized papers under those circumstances. Digital plagiarism might do us the favor of shedding welcome light on one of academe's sloppy secrets.

Intellectual "property"

We have failed to cope with another aspect of the rise of digital documents – digital copyright. Academics have been ineffective in combating commercial interests in the push to narrow fair use provisions of copyright law as it is re-written. Efforts to further extend proprietary control of information in databases, even for previously public information are still strong and might yet prevail. Our unfamiliarity with the issues entailed by information in digital format are costing academe influence in the shaping of laws that are reversing the constitutional basis for copyright – that the protection against copying is provided in order to stimulate intellectual endeavor, and not just to make documents and information into trade goods.

From paper to digits to paper

Almost everything that is published today begins as or becomes a digital document. We now see texts, documents, data, pictures, music in a nearly Platonic view: the form in which we encounter them is a second-order phenomenon. An article in a newspaper contains a URL that leads us to a computer (digits) that in turn leads us to a book to order on inter-library loan. Almost all new publication is first digital, and some of it also becomes available electronically even after paper publication. On the other hand, online indexes and databases have had an enormous role in improving access to paper publications – witness the case of the Bibliofind service on the web, which pools listings from hundreds of used-book stores in a searchable context.

We academics tend to get complacent and lazy about the conduct of our own enterprises (both institutional and intellectual). The digits-and-paper interrelationship can help us wake up to neglected business. TW

> **"The semantic web will facilitate the development of automated methods for helping users to understand the content produced by those in other scientific disciplines. On the semantic web, one will be able to produce machine-readable content that will provide, say, automated translation between the output of a scientific device and the input of a datamining package used in some other discipline, or a self-evolving translator that allows one group of scientists to directly interact with the technical data produced by another."**

Tim Berners-Lee and James Hendler
Web Debates, "Scientific Publishing on the Semantic Web"
Nature
www.nature.com/nature/debates/e-access

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Senior IT positions are hard to fill and have been for some time. In this climate, how can we maximize our chances of persuading candidates to accept our offer?

A. *Contrary to popular belief, the answer is not just the highest possible salary – though higher is always better than lower. Remember in all aspects of the interview and visit that your organization and institution needs to be "selling" itself just as much as it is scrutinizing the candidates. Everyone should be well-prepared and organized. Group interview sessions do more to convey a sense of the spirit of the place than one-to-one interviews. Seeing your staff interacting will go a long way towards convincing a candidate that your organization is a good one to join. Be sure also to give a good sense of the larger institution: you are not hiring this level of person into a cubicle. Make sure to schedule ample time for the interviews, tours, lunch, and so forth. Too often recruiting is viewed as a chore. It should be enjoyable for all involved and a good occasion for everyone to learn something. Above all, keep in mind that you are making a large investment in the person you hire, so don't skimp on the care you put into the interview visit.*

Q. IT is surely not the only operation on campus to feel completely frazzled at the end of the spring semester. What can we do to lessen the stress and strain on ourselves during the final weeks of the semester?

A. *This is one of those topics where we all make ourselves promises about how we'll be smarter next year, and make things easier for everyone. Here are some practical suggestions. Are there any projects that you can suspend for the month of April? Do you really need to conduct any job searches during that part of the semester? Discourage staff from taking vacation days during that stretch of time – their attempt to preserve their own sanity by taking some days off just intensifies the load on the other staff members. Instead, emphasize the need to be mutually supportive, and put some reality into that thought by ordering in pizza (or better) from time to time and otherwise taking some extra steps to look to everyone's enjoyment and comfort on the job. Close down as much of the shop as possible right after commencement for a day or two. Your staff can look forward to that – and nobody has to bear an increase in work when everyone is out.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE EDUTECH REPORT

May 2001

Volume 17
Number 2

The Education Technology Newsletter for Faculty and Administrators

Knowing Your Techies

Time was that every IT shop (back in the "computer center" days) had some staff who simply could not work in contact with the public. Most of computing took place behind locked doors, in highly air-conditioned rooms with raised floors, roaring equipment, and clattering printers. A user was someone who called on the telephone or came by to pick up a print-out. We all remember computer center staff who wore long-johns to ward off hypothermia and army fatigue jackets because they were cheap, and who would see or care? Yes, this is a shop-worn stereotype, but we all knew (or maybe were) such people, and now the *Dilbert* cartoon strip chronicles the mis-adventures of today's descendants of the type. People who describe themselves as "primarily technical" are still the core workers in IT despite the vastly more "public" nature of the field today.

"Techies" still tend not to have chosen that line of work until they found themselves in that first job and liking it. They do not come to the profession of IT support from a standard preparation. Two and four-year degrees in applied computer science and certifications from commercial training programs do not add up to anything like the Master of Library Science degree that is standard credential for librarians. Those holding advanced degrees are more likely to have studied chemistry or political science than computer science or any of its offshoots. In some ways, the core of technical staff supporting IT bears more resemblance to the old movie stereotype of the French Foreign Legion: folks who have left behind them histories and hopes that they perhaps do not talk about very much.

Within the corps of staff working in campus IT organizations,

continued on page 4

"Most people who have developed serious Web applications ... recognize that a Web-based application is as different from a textbook as a textbook is from a lecture. Digitizing a textbook and adding a few graphics (or even film clips) is simply an Internet-accessible book.... Is MIT 'giving away the store'? Only if you think faculty lecture notes will come to dominate Web-enabled learning as they have historically dominated faculty lecture. Will individual faculty working in 'splendid isolation' create the Web-enabled learning environments of the future as they have historically created the textbook? Only if you think those learning environments of the future will read like textbooks."

Robert C. Heterick
"Is MIT Giving Away the Store?"
The Learning MarketSpace
May 1, 2001

BEST COPY AVAILABLE

NEWSBRIEFS

THE DISAPPEARING BOOK

At the heart of e-books technology are two fundamental strategies. The first is to mimic the readability of a typical book – in the words of Bill Hill, "to make it physically disappear" as we read it. The second strategy is to improve the functionality of the book, adding new tools that enhance its ultimate utility. One technology to do this is ClearType, a display technology developed by Microsoft Research that brings the look and feel of high-resolution printing to on-screen reading.

Beyond basic readability, e-books technology offers new potential for the visually impaired, allowing the text to be manipulated, made larger, fed into Braille readers, converted to audio. It also democratizes content. "I can load about a hundred books on my PDA [personal digital assistant] and put them in my pocket ... think about that!"

Stefanie Sanford, "Bill Hill: Homosapiens 1.0 - An E-Book Story"
Converge Magazine, May 2001

SAFE HARBOR

Legislation to ease copyright restrictions so that some kinds of digital music and video could be more widely used in online instruction was quickly approved by the Senate Judiciary Committee on May 17, 2001.

The legislation would broaden the "safe harbor" provisions in the Digital Millennium Copyright Act so that recordings of dramatic literary and musical works – such as plays, musicals, and operas – could be used for distance education. Under current law, only non-dramatic literary and musical works are protected by the safe-harbor provisions.

Andrea L. Foster, "Senate Committee Favors Letting Instructors Use More Digital Works in Online Classes." *The Chronicle of Higher Education*, May 18, 2001

EDUCATION RESOURCE ORGANIZATIONS DIRECTORY

Provided by the U.S. Department of Education, EROD is a metasite that indexes over 4,000 sites that offer information and assistance on a wide range of education-related topics. Each entry includes contact information and, in many cases, a link to their Website. A useful overview section describes the database, the types of organizations it includes, and what specific audiences (teachers, librarians) might find. A submission form is also provided for those wishing to suggest organizations for inclusion.

See http://www.ed.gov/Programs/EROD/. From *The Scout Report*, Copyright Internet Scout Project 1994-2001; http://scout.cs.wisc.edu.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com).

Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.

ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

The CIO Leadership Series

The Chief Information Officer in higher education is a scarce and precious commodity these days. Institutions searching for the right people to fill their CIO positions (in many cases, these are newly created openings) are abundant and exceed the supply many times over. It is not unusual for a search to stay open for months and even then, to result in a less-than-satisfactory placement.

> "Act well your part, there all honour lies." – Alexander Pope, *An Essay on Man*

On the other side, many current CIOs are unhappy in their positions, feeling undervalued, under-resourced, and under the gun. The CIO job is, arguably, the toughest job in any college or university. Too many colleges and universities created and hired into the CIO position before the institutions themselves were ready, and many others simply are not using the position appropriately.

In the belief that CIOs are made, not born, and that excellent higher education CIOs should be found in larger numbers than is currently the case, our June issue will introduce a new feature for the newsletter: a monthly column on leadership for CIOs in higher education. These columns will be targeted at three groups: current CIOs, those who aspire to be a CIO, and others on campus who work with CIOs and who want to help the institution's IT efforts succeed in the best way possible.

Some of the topics we plan to cover in these columns over the next few months:

- The essential elements of leadership; how being a leader differs from being a manager or a director.
- Your relationship with the president – the most important critical success factor for a CIO.
- Ten measures you can take to start building lasting relationships with the rest of the top administration.
- Money – how to find it, how to keep track of it, how much you need.
- Governance – what kinds of committees you need, and what kind you definitely don't want to have.
- The three most important leadership skills for a CIO: listening, forming alliances, knowing when to act.
- How much can the CIO change the institution?
- Taking the measure of your own institution – how ready is it for growth, change, improvement?
- How to see yourself as CIO/How others see you as the CIO.
- Horrible examples and traps you can fall into, how to avoid them, why they happen.
- False memes that are running around out there about what a CIO is and does. (They shot and buried the Czar decades ago.)
- Bad reasons why other people want you to be CIO, and how to avoid seeing these poison pills as gifts.
- Is the CIO job the end of the trail? Where do you go from here?
- Is there a CIO shortage? Or a shortage of CIO-ready institutions?
- What happens to your old job when you become CIO?
- How to unlearn the answers you learned in your last job.
- Leading or serving? Who on campus gets to make the big decisions about IT?
- Filling in your resume: what are the professional qualifications that help a CIO be a success?
- Models of excellent CIO leadership; real-life examples.
- The importance of planning – seeing your job as multi-year, seeing IT as multi-year.
- Not reinventing the wheel – resources you can borrow, policy statements, plans, etc; where they can be found and collected.
- How to make sure your institution's CIO succeeds.
- The art and science of generating consensus on campus.

As may be obvious from this list of topics, this series is not about how to be a better computer center director or IT manager (certainly difficult enough jobs all by themselves – but not the focus of our attention). Although the definition of a CIO varies somewhat from campus to campus, our intent is to reach those who are leaders and want to get better at it, or who want to become leaders, or who want to learn more about IT leadership in general.

These articles will be based on our ideas about CIO leadership, as well as on those of currently successful CIOs, building on years of working in higher ed information technology, but we would also very much like to hear from you, our readers. We hope that these articles will enlighten, inform, and entertain, and we recognize that in order to accomplish those goals, our writing should be as interactive as possible. Tell us your ideas for new articles, or comment on an article you have just read. Just send us e-mail at CIO.leaders@edutech-int.com. ■

> "Leadership is the art of accomplishing more than the science of management says is possible." – Secretary of State Colin Powell.

Knowing Your Techies. . .

continued from page 1

there is a persistent division of social types: managers, techies, and user-services – the last of these being helpdesk and training staff. To these we should also add a rival tribe: the computer scientists. The normal mode of relations between computer services personnel and computer science faculty is, in a word, jealousy. Cooperation and trust are exceptions when they do happen. Both camps claim to have the true understanding of the machines that everyone covets.

Why does this quasi-ethnography matter? Because the IT workforce is still poorly understood by senior administrators, human resources departments, and the faculty.

Motivation

Recruitment and retention of technical staff have been hot issues for a number of years and show no signs of easing. But how well do we actually understand what motivates tech workers and how they react to the methods we use in trying to attract and keep them? They are ambivalent about money. When the work is interesting (breaking new ground for them technically) and the workplace comfortable the money seems good enough. But if those considerations turn sour, money re-emerges as an issue – and no amount of it seems enough. Techies usually believe, with some justification, that they could make more money elsewhere. And so they feel somewhat conflicted about remaining where they are earning less, a feeling that comes up with bitterness if their feelings of job satisfaction slip.

Tech workers are often indifferent to the sociability and academic and cultural perks of campus life. At the same time, they value and appreciate the relatively tolerant ethos, and they generally welcome the rather weak standards of management for which academic institutions are notorious. Accountability for efficient work and good service are not exactly hallmarks of campus worklife. These workers are not necessarily less inclined than others to work hard, but the nature of their work is such that close supervision is not always possible.

Workplace attitudes

Techies respect mostly other tech workers and their supervisors only if they, too, are technical. It is not at all unusual for them to look down on helpdesk and training staff as being insufficiently technical. On the other hand, they resent not being respected as peers by faculty. The social outlook of tech workers is democratic, at the same time that they can be harshly elitist in their assessment of others – at least with regard to tech skills.

> *Recruitment and retention of technical staff have been hot issues for a number of years and show no signs of easing. But how well do we actually understand what motivates tech workers and how they react to the methods we use in trying to attract and keep them?*

Organizational preferences

Techies tend to like flat organizations, which fits well with their view that effort spent on anything other than technical tasks is superfluous. The most damning dismissal is to call a managerial concern "political." In the flat organization everyone is closer to the hands-on work and a one-dimensional measure of value. Workers are defined by their relationship with the work and much less with other people.

Technical workers are strongly able to resist the force of hierarchical management. Because so few peers or supervisors can challenge them knowledgeably on their work, techies feel impervious to the impatience or disapproval of those higher in the organizational pyramid. To be "higher" is to be distant, ill-informed, and just an impediment to "real" work. These attitudes come to a difficult head in work-place reorganizations or other new and concerted management initiatives. Top-down does not go down well. Resistance and resentment can be the result.

Poor workplace relations are also common with other groups whose support and sympathy would seem natural and welcome. IT tech staff often do not get along well with librarians, physical plant workers, and – as noted earlier – faculty. These are all, of course, relationships that IT managers need to cultivate but often find set back by their own staff.

Difficult consequences

Adjustments in workplace organization, usually a source of some anxiety, take on a special difficulty in IT organizations because of the tendencies of tech workers. Promotions up to managerial duties are probably the toughest kind of change to make in this setting. A colleague now doing less hands-on work is not appreciated in the new role. By the same token, these attitudes do not prepare staff well for promotion, a

Now available in HTML!

The Edutech Report is now available through your e-mail in HTML format.

If you would like to receive the newsletter each month via e-mail, just let us know by sending a note to format@edutech-int.com.

Be sure to include your e-mail address and tell us if you would like the HTML version in addition to, or instead of, your paper copy.

If we don't hear from you, we will continue to send your paper copy, as usual.

If you have any questions or comments about your subscription or about the newsletter, please write us at feedback@edutech-int.com. We would love to hear from you!

problem that in turn does not endear the newly promoted to their colleagues.

Inter-departmental mergers, like IT and the library, are greatly complicated by the special resistance of the tech workers. But then part of the reason for library-IT mergers has been to try to suppress the tech ethic, which has been targeted for its association with poor customer service attitudes. In response, it is not unusual for techies to quit the newly merged organization. Those reorganizations tend to have a difficult path, at least until departed tech staff are replaced.

Incentives and stability

The heart of the difficulty with techies in academe is the near-total absence of useful incentives to encourage and reward good performance and a cooperative attitude. Money is ruled out for two reasons. Academic institutions are too cost-constrained to pay the kinds of premium rates found in commercial enterprises. And the (laudable) push to rationalize job classifications and pay rates across the institution removes much of the remaining potential to use salary increases as effective incentives.

If the stereotype of the less-than-sociable tech worker has any validity, we can also see why social approval in the workplace (employee recognition awards, for example) do not appeal strongly either. The social association that matters is that with peers, not the wider workforce, a possible starting point from which to figure some effective measures for better and happier management of techies.

Improvements

The chance to do better depends on knowing the techies–their values, concerns, abilities, and reluctances. Not every personnel difficulty is improved by the reflex to tighten the managerial grip.

Their preference for a flat organization and affinity with like workers suggests gathering tech workers into a larger group. The benefit of association probably outweighs finer distinctions that would otherwise lead us to divide workers by specialization and group them in multiple departments that, in theory, should be well-focused on a set of tasks. We know that in reality desktop computing specialists need to interact easily and freely with the server and network folks. Much as we would like them to also cooperate with purchasing clerks and physical plant electricians, the basic need is for access to other IT techs. Perhaps a deal is in order: a bigger, less-specialized department – and fewer managers – in return for a greater degree of self-management.

> *One of the open secrets of the information age is that knowledge is invariably a barter good. The workplace is being remade in light of the need to exchange knowledge and expertise across the job classifications we carry forward from the industrial era.*

We tend to call all kinds of work groups "teams," but the proposal here is to take that idea very seriously: a team is essentially self-regulating. It is the antithesis of hierarchical management and chart-driven organization. The real challenge in making that approach work is more likely to be the degree of trust and cultural comfort needed in the institution for really participatory management.

Accountability

At bottom, the institution needs accountability for the labor it expends. Someone needs to assure that the work is done, and done well. We are in a position to barter with those who are willing to give that assurance. In the end, how important is the difference between a manager determining task details for staff and the way they would handle it if given that latitude in return for their acceptance of the need to be accountable? The question takes on special meaning in the technical workplace, where the manager-directed process has to stop to ask the technicians what actually needs to be done; those tasks are then turned around and handed back to those who knew them first.

One of the open secrets of the information age is that knowledge is invariably a barter good. The workplace is being remade in light of the need to exchange knowledge and expertise across the job classifications we carry forward from the industrial era – when the nature of work, knowledge, management, authority, and power were different from now. Specifically, for managing our techies, we need to know better what they bring to the barter and what they need in exchange. All management is now a form of negotiation. The challenge and highest priority for managers is to understand where the knowledge and

continued on page 7

BEST COPY AVAILABLE

A Most Valuable Resource

Since its introduction a year ago, *The EDUCAUSE Guide to Evaluating Information Technology on Campus* has helped thousands of prospective college and university students and their parents evaluate the information technology resources provided by schools across the country.

The *Guide* has been featured in stories in the *Chronicle of Higher Education, Business Week*, and other national media and is being increasingly referred to in a wide range of news reports. Now, to build context and further assist in this decision-making process, EDUCAUSE has expanded the *Guide* in an online version with more complete interpretive information.

Charting the level

Filled with practical explanations and easy-to-understand charts and graphs, the online *Guide* provides comparative data that illustrate the level of IT use and innovation among six institutional classifications: private and public two-year colleges; private and public four-year colleges; and private and public universities.

The *Guide* does not rank schools. (This is not the EDUCAUSE version of the "most wired" campuses ranking.) Instead, it identifies a set of critical questions that parents and students should ask in order to match a student's specific academic needs with the information technology offerings of prospective colleges and universities.

A comprehensive method

A key assumption is that in evaluating technology, students should not use the "more is better" criterion. Depending on students' academic interests, more technology or the extent of advanced technology may or may not be pertinent.

Brian Hawkins, EDUCAUSE president, says the online *Guide* provides a comprehensive method to help potential consumers better understand how colleges and universities are using information technology and networks to enhance classroom education, provide improved administrative services, expand library access, and in general, create more integrated societies of student learners. "Even more important, the expanded *Guide* will help students and parents develop a context for thinking about these innovations, what they cost and why they are important. This should provide an important service to families trying to find just the right fit as they enter the higher education market," Hawkins said.

The *Guide* offers information and suggests critical questions regarding four areas:

1. *Academic Experience.* How many campus courses use IT to enhance learning? What library resources are available online? How does the campus help students develop computer skills" Does the campus have a specific computer/IT competency requirement for all undergraduates? How many faculty have access to a networked computer?

2. *Administrative Experience.* Are student records and data available online? Is registration – including dropping and adding classes – processed electronically? Can students obtain their grades online or by phone? Can students pay bills, receive loans, and make bookstore purchases online?

3. *Social Experience.* Does the campus allow personal Web pages? Is contact information for students, faculty and staff readily available? Is there a campus code of conduct for use of computing and information resources?

4. *Requirements, Services, and Cost.* What, if any, technology fee is charged, and what does it cover? Are students required to purchase their own computer? What kinds of services – help desk, training, troubleshooting–are provided by the campus, and during what hours of operation? Does the campus assess additional fees for connections to the dorms or for off-campus connections?

The enhanced *Guide* provides a detailed explanatory note for every question, explaining the context for the question and the reason the question might be relevant. Charts and graphs illustrating national norms also accompany most questions. Information on these national norms is provided by The Campus Computing Project and its director, Kenneth C. Green.

Since the *Guide* was first introduced, hundreds of campuses have ordered copies of the print brochure to pass out to prospective students, and a number have developed their own Web sites answering the questions raised in the *Guide*. EDUCAUSE now provides links to these campus-specific sites from the online *Guide*. Members are encouraged to develop such sites and to send the URLs to EDUCAUSE for inclusion. ■

The Guide was developed by EDUCAUSE in cooperation with the National Association for College Admission Counseling and the American Association of Collegiate Registrars and Admissions Officers. Hard copies of the Guide, without the charts and explanatory notes, can be ordered from the EDUCAUSE Web site for a nominal fee. See www.educause.edu/consumerguide.

Knowing Your Techies. . .

continued from page 5

needs are, and how to bring them together. We need to have a better sense of what everyone brings to the job.

Smarter about incentives — The techies know a lot of the questions that we need to be asking; what do they need in return?

One item of great value is independence, the authorization to do the tasks that need to be done and to be able to speak up about the needs of the work. Of course, this is another way of saying "respect." But it also means recognizing that granting respect is not optional; it is the starting condition for getting anything done in our workplace.

More concretely, technical staff value machines, software, and training. These we can and should recognize as incentive and reward items – things of special value to those whose work and personal interests concentrate on them. For example, with flat-screen monitors coming down to nearly reasonable prices, wouldn't one of those be a welcome bonus item?

Some protected time for experimentation and discovery is another scarce commodity of value to technical staff – one with an obvious potential for value returned, as well. Here is a chance for someone to install Linux for the first time.

And what of the social dimension in incentives? We've recognized the need to get tech workers better included in the mainstream of campus life, and also the reluctances encountered on their part. Maybe a new tack to try is bringing everyone else more in their direction. People who can put additional memory chips into their own computers are moving in the direction of common ground with their technical colleagues. Nobody should be invested in staying dependent for basics they might well handle themselves. Demystifying technical work is a good way to build community and mutual respect.

Knowing your techies — Sometimes asking and listening are the most necessary skills. That way we let knowledge find us. We tend to associate effective management with decisions and actions – and this is true. But there is also a phase of discovery that has to have its chance as well.

It is surprising to recognize how little progress we have made in so many years on the task of adapting our institutions to the changes we need to make to be successful in the IT era. But at the same time we should take some encouragement from what we can learn from our colleagues who also work on that problem every day. TW

"A new style of leadership is necessary in a campus environment that is characterized by a growing number of students who expect to actively participate in the creation of knowledge in a distributed learning environment, by an even faster-growing number of faculty who want to change their teaching methods both to accommodate their students' new learning styles and also to create active learning situations for their students, and by unprecedented growth in external competition. This new style of higher education leadership must accept responsibility for linking infrastructure to academic strategy within the unique value system, culture and world view of a given institution."

Carole A. Barone
"Conditions for Transformation: Infrastructure Is Not the Issue."
EDUCAUSE Review, May/June 2001

Let us know...

Please contact us if you would like to reprint or re-publish an ***Edutech Report*** *article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Departments and offices across our campus have equipment (computers, printers, zip drives, a-v items) that they buy with budget scraps. These things seem never to find their way into our inventory, yet we get the urgent phone call when they break or need replacing. What can we do?

A. *We'll presume you have ruled out pressing to have purchasing rules tightened so that these items do not slip through. While that might be the simplest way to catch up with this "gray market" in equipment, it is also liable to be resented. Offices and departments cherish the little bit of leeway they have to acquire those devices with the odd piece of budget surplus. One alternative would be to offer this deal: "You tell us about the equipment, let us register it, and let us borrow it once in a while, and in return we will handle preventive maintenance and even put the devices on a central schedule for routine replacement." That last part should clinch it: windfall purchases that do not make it into the central equipment list tend to be hard for departments and offices to replace when the time comes.*

Q. There are so many opinions about whether to unplug computers at the end of the day during the summer, or let them run twenty-four hours a day, leave the surge suppressor turned on overnight, or off, and so on. What recommendation do you have?

A. *A sure sign that the academic year has ended is the annual fuss about computers, electricity, and electrical storms during the summer. And, yes, you hear all kinds of ideas. The main thing to know is that no surge suppressor is going to protect computers and other devices if there is a very close lightning strike. You have to have everything unplugged from the electrical current to avoid damage in those situations. There are two good reasons not to let a computer run day and night: the risk that goes with leaving any networked device connected but unattended and the return, this summer, of the need to conserve electrical power. On the other hand, a computer that is running is warm and tends to dry out any moisture that might accumulate in inside dust if the humidity gets too high. Still, the greatest strain on computers during the summer is probably voltage drops due to sharing electrical circuits with air conditioners. Or, you might choose any one of the above and follow it every summer, as a kind of rite to mark the roll of the year.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

June 2001

Volume 17
Number 3

THE EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Perspectives on Privacy in Campus IT

Privacy and the threats it encounters in the digital era now has high visibility in the public press. Citizens and some politicians have begun to learn the extent to which information about individuals gleaned from many sources is avidly collected and analyzed in the commercial world. Concerns about similar activities by government agencies also run high. Networks, computers, databases, and software to exploit them have raised the scope, intensity, and intrusiveness of this information-gathering. Those same tools have also made it possible to retain the identity of the individuals whose information is swept up: the vastness of this data trove does not imply that the information needs to be aggregated in order to be manageable, as we would have expected before the "information age."

The academic world has been slow to explore its particular stake in the public debate about the values and vulnerabilities of privacy. Since 1974, the Family Educational Rights and Policy Act (FERPA) giving students and families rights of privacy but also information access has occupied most of the attention we have given to issues of privacy. Colleges and universities have also addressed some privacy concerns in their campus computer and network usage rules, particularly with regard to e-mail and the users' obligation not to intrude on the privacy of others' accounts. Privacy is also invoked in the name of security: the need to keep passwords private has more to do with curtailing unauthorized access to resources than the protection of individuals' information (which is why there is so little regard for system administrators' exhortations on the subject).

continued on page 3

"In the real world it's often impossible to observe directly whether outcomes are improving as technology use changes. There are at least two reasons for that. First, faculty often use technology in order to change their instructional goals, not just to teach old goals more effectively. Five years ago Prof. Xebec was trying to teach B. Today, with use of new technology, the professor is trying to teach A. So by what percentage did learning improve in the last five years? That may be an impossible question to answer. Second, if you're looking at a course, or a department or an entire institution, there is likely to be an enormous variety of outcomes. So it's also tough to measure net improvements in outcomes for that reason."

Steven Ehrmann, interviewed in *Distance-Educator.com* published May 20, 2001

NEWSBRIEFS

FUNDING THE "INFOSTRUCTURE"

The problem of institutional financing for technology infrastructure is not confined to distance learning. Even campuses that have chosen not to offer distance learning must invest in information technology to remain competitive. Students demand Internet and e-mail access to augment conventional classroom, library, and research resources. These tools are essential for faculty research as well. Campuses must have access to IT to meet administrative and student services needs, including filing reports with federal and state agencies. In a highly competitive marketplace, institutions that fail to offer students and other clients easy access to their institutions through technology risk losing market share.

See Ronald A. Phipps and Jane V. Wellman, The Institute for Higher Education Policy. *Funding the "Infostructure."* Lumina Foundation for Education, www.luminafoundation.org/Publications/publications.htm.

MODELS OF ONLINE EDUCATION

There has recently been a mad rush by universities, venture capitalists and corporations to develop online courses, virtual universities, education portals, and courseware. The drive to develop a winning formula for commercial online education has fostered some unusual partnerships. This paper provides a broad overview of some models of online education that have been developed. It examines some of the rhetorical strategies that have been used to talk about online education by commercial groups, and discusses some of the hopes and fears that have been associated with online instruction by academics, administrators, and businesspeople.

The paper is available online at firstmonday.org/issues/issue6_5/werry.

TWO FOR WEBMASTERS

The websites http://www.usability.gov, put together by the National Cancer Institute (NCI) and originally for use just by the NCI staff, and http://www.nla.gov.au/guidelines/2000/persistence.html, from the National Library of Australia, are designed to help those who create and maintain Websites ensure that those sites are usable and stable. The first has resources that span a broad range of material from data collection to server log analysis to federal guidelines on accessibility. The second site consists of a set of guidelines geared toward helping Webmasters maintain accessibility to online resources. Among other topics, the guidelines cover re-directs, resolver databases, and persistent identifier services, as well as advice on organizing Websites so that material need not be moved frequently and keeping older material accessible.

From *The Scout Report*, Internet Scout Project 1994-2001, http://scout.cs.wisc.edu

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). **Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.** **ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.**

BEST COPY AVAILABLE

Perspectives on Privacy...

continued from page 1

Some statutes and regulations affecting higher education have had as their object the release of information institutions formerly kept private. Most states now have laws requiring campus crime statistics to be made public and accessible, driven by the perception that colleges and universities were reluctant to let the public know the record on crime. Publication of the salaries of top administrators and faculty is now an annual rite, part of the wider movement to hold educational institutions accountable for their expenditures. The releases of information on crimes and salaries are examples of trends to publicize information previously held confidential and treated as "private."

The bedrock of legal advice colleges and universities have received for their policies regarding the privacy rights of staff, faculty, and students has been to minimize expectations of privacy. Most of these policies make the fundamental assertion that information residing in institutionally-owned computers and networks belong to that institution, and that individuals cannot consider that information their own. This position is identical to what prevails for businesses. While faculty and students rarely protest, many of them believe their academic freedom implies rights of privacy despite the policy on institutional ownership of digital information on college or university systems.

Academic thresholds

There are a number of privacy issues lurking not far beneath the activity of everyday life on campus. Only on occasion do these surface in controversy. They are noteworthy because they suggest that the academic community has privacy issues beyond those recognized in the wider public.

Students have an uneasy relationship with college staff over policies on intellectual property – as exemplified by the conflict over Napster. The institutions worry about their responsibility (and liability) for copyright observance. Students claim that music files they exchange over the network are private.

Even more sensitive is the tension over pornography. Public-use computers are typically configured so as to erase the trail of websites visited, pages cached, and files downloaded. This practice is aimed more at clearing materials that might offend the next user than at protecting the activity of the first one.

> *Faculty and students engaged in distance education or even electronic communications to supplement classroom-based instruction lose a measure of privacy when their communications are circulated via networks and stored on servers or videotapes.*

Staff monitoring publicly-accessible computers report discomfort with the prevalence of pornographic images. Because network browsing (and downloading and printing) seem private to users but leave traces that others see, there is a constant level of skirmishing over privacy on campus-public computers. Students are encouraged to explore information in the pursuit of education but find that they are more apt to encounter privacy issues in their use of IT than their class notebooks or the books they use in the library.

For that matter, the library's circulation records do constitute a trail of an individual's readings and interests. By tradition and policy, that information is treated as if it were private, but just as bookstores have found their purchase records sought in a few criminal investigations, so too libraries might face that same challenge. Protection of readers' circulation records could be subject to abuse through unauthorized database access if not adequately secured. The history of one's reading was not nearly as easy to log before the advent of online records systems.

Faculty and students in distance education or even just using electronic communications to supplement their classroom-based instruction lose a measure of privacy when their communications are circulated via networks and stored on servers or videotapes. The classroom, even the lecture hall, always had an approximation of privacy because instruction was limited to those actually in the room and had only whatever memory the participants and their notes preserved. E-mail, discussion forums, and video cameras substantially extend the reach and memory of the classroom. These capabilities raise questions of intellectual property, but they also lessen the privacy of the participants.

Academic perspectives

Which aspects of education need to be private? Which are intrinsically public? Are any of these showing signs of change?

continued on page 6

The Nature of L

Leadership. It is such an overused word, it's on the verge of becoming trite. It is used to describe people as different as Genghis Khan and Colin Powell; Martin Luther King and Martin Luther; Pope John Paul II and Jim Jones; Queen Isabella and Florence Nightingale; Steve Jobs and Bill Gates. And it has been an essential element, in one form or another, of every management trend (and fad) for the last thirty years. Books, articles, and speakers exhorting us to be stronger, more sensitive, more visionary, more detail-oriented, more purposeful and deliberate, more ruthless, more this or that have proliferated beyond measure. Our organizations succeed by having good leadership, we are told, but it remains, at best, an elusive quality.

Nevertheless, although many of us may not be able to define the word precisely, we almost always "know it when we see it." And we especially notice its lack when organizations go astray or when projects go awry. Both the presence and the absence of leadership tend to have dramatic consequences. So as overworked as the word is, the idea behind it is still a very important one.

As we begin our series of articles on CIO Leadership, rather than trying to define what leadership is, we will describe what a leader does. We will use the word *leadership* in this particular way: to mean the quality that helps us

- focus on long-term and large-impact issues;
- shape and define goals and objectives, often on behalf of others;
- take initiative and responsibility;
- **overcome barriers;**
- communicate widely and at all levels;
- influence both people and events;
- achieve consensus;
- be energetic and imaginative; and
- make what can often be very hard decisions.

In short, it is the quality that helps us *make a difference*.

Over the coming months, we'll be writing about each of these components and the ways in which we can strengthen them to be better leaders. But how does all of this apply to being a CIO? And why should it apply at all? After all, isn't being a CIO about helping our institutions use technology? And doesn't having an important department report to you mean that you already are the leader? We might first leap to the obvious answer to both questions: yes. But a closer look suggests a different answer. Being a CIO is both wider and deeper than just managing technology; it is about being a principal participant in fulfilling – and even an architect of – the goals and objectives of the institution itself. It means working side-by-side with the institution's decision-makers to shape the future. And managing a department, even a large and complex one, does not necessarily make you a leader; it makes you a boss and a manager, but you can be both without being a leader.

> *Being a CIO is both wider and deeper than just managing technology; it is about being a principal participant in fulfilling – and even an architect of – the goals and objectives of the institution itself.*

Is it important for every college and university to have a CIO? Is it important for a CIO to be a true leader? Our answer is that there is barely an issue more vital for higher education today. That may sound overly dramatic as we look around the higher education landscape and see rapidly rising tuition costs, louder and louder calls for accountability (especially in our public institutions), potential threats from for-profit educational enterprises, heated arguments about affirmative action, disputes about the future of tenure and the role of senior faculty, too much deferred maintenance, and many other important and often contentious issues. Nevertheless, for an individual institution, the lack of a CIO or the presence of a CIO who is not an effective leader may well result in an institution that – literally – does not survive. And for higher education in general, the dearth of qualified, experienced, and effective CIOs is already resulting in big problems: failed multi-million dollar IT projects, disappointment in many of the results of distance education initiatives, and lack of the real progress we need in classroom-based instructional applications.

The fact is that information technology is in a very awkward relationship with higher education right now. Despite more than twenty years of promising and even visionary efforts, IT just doesn't fit very well yet. Yes, we have begun to see some real benefits, but IT is still horribly expensive – almost all institutions today are still trying to figure out how to fit the IT-related line items into their budgets. Both capital and operational budgets are strained by the pressures from IT. Where does money come from to

adership for CIOs

fund a three- or four-year desktop replacement cycle? Where does money come from to acquire the right kind of campus information system? Where does money come from to help faculty make use of technology in their courses? These are all needs that simply didn't exist ten or fifteen years ago (a mere nanosecond in institutional histories), so strategies for funding these needs have to be invented from scratch. In an era of limited resources, these strategies are hard to come up with.

But it is not just the money issues that account for the awkwardness. Information technology is a different beast from much of what else surrounds us on a typical campus. In a (usually) pleasingly attractive environment that encourages tradition, personal relationships, idiosyncratic creativity, intense scholarship, deliberate decisions, and predictable events, IT intrudes as an ugly, impersonal, undependable, works-only-when-standardized, expensive, fast-moving, and unpredictable *thing*. Except for the specialized applications in the campus research labs, the cultural fit between computers and higher education has been very slow to develop.

Nevertheless, despite the expense and discomfort, most of us in higher education have recognized that IT is here to stay and that to take advantage of it fully, a degree of institutionalization needs to take place that clearly has not yet occurred. And the need for IT to become institutionalized is at the heart of why the CIO must be an effective leader.

We need to accelerate the process of moving IT from its place as an add-on to incorporating it into the very fabric of campus life. We need more standard approaches; we need more routine ways of dealing with challenges and problems; we need commonplace methods of funding. Right now, it's all still new (even after all these years!), right now we still fight IT fires and deal daily with IT crises. No time to plan, no time to reach consensus, no time to set expectations. Because IT is still the outsider on campus, because we are still dealing with it all in institutionally specific ways, because we have very few widely applicable solutions and approaches, we haven't yet been able to reap the enormous benefits that will eventually accrue. This is where the CIO needs to be – at the forefront of incorporating IT into the campus in a way that makes it permanent and real and that gives the institution the proper opportunities to reap the benefits. And it is only the CIO that can do this, given the right combination of institutional perspective and technological knowledge. It is the CIO who is most likely to be in the position of influence, authority, and centrality to shape the institution's strategic approach to IT.

> *For an individual institution, the lack of a CIO or the presence of a CIO who is not an effective leader may well result in an institution that – literally – does not survive.*

As we'll see, the colleges and universities that are the most successful with IT have CIOs who are leaders. These institutions are characterized by a strong and healthy relationship between the CIO and the CEO; collaborative, participatory, and ultimately successful IT projects; professional and committed IT staff; and a multitude of partnerships and relationships all across campus furthering the institution's goals. The CIO is mobilizing, inspiring, accomplishing, collaborating, and exceeding expectations. In other words, the CIO is leading.

None of this, of course, is easy, and clearly, the CIO is not working alone in these exemplary institutions. Imaginative and receptive presidents and board members, an educable top administration, faculty willing to take risks, a dedicated IT staff – all very important. But it is also true that the CIO has an opportunity to create, or at least to shape, these conditions as well. One of the purposes of this series of articles is to discuss the ways in which this can be done.

We hope, also, to encourage the proliferation of CIOs. There are too few good ones to go around and to fill the increasing need. There is also still a lot of confusion in many institutions about what a CIO is and what to look for when they need a CIO – where does it fit? what are the qualities? what is the span of responsibility? how do we help the CIO succeed here? Again, higher education has developed a multitude of institutionally specific answers, but not much in the way of broadly applicable approaches.

It is time for every college and university, small or large, public or private, rich or poor, to have a CIO. And it is time for the CIO to take his or her place at the table – the one in the president's conference room.

LF

Perspectives on Privacy...

continued from page 3

The imposition of mass, standardized tests as an educational reform over the past decade has essentially pushed public accountability ahead of privacy in education. The independence that teachers have had to shape curriculum and teaching methods is under assault in the name of higher standards. Whatever their merit, these tests shift the balance of control in education away from the classroom and into the political arena. The public's stake in educational outcomes is cited as the reason for this intrusion.

In higher education, no comparable mandate has occurred. As long as individuals pay their own tuition there will be less pressure for public scrutiny of instruction and evaluation than in public-funded primary and secondary education. Public institutions of higher education have always been subject to at least sporadic scrutiny by state legislatures in proportion to public perception of costs and value.

It might be that the autonomy of faculty in colleges and universities varies inversely with the degree of public scrutiny: the privacy and independence of faculty is stronger when the public is not watching, weaker when the object of their attention. Can anyone remember an educational reform movement that focused on securing more autonomy and individuality for classrooms and their inhabitants?

Certifications are a notable exception to the evaluations conducted by colleges and universities by themselves. These have generally been directed towards the public and treated as different from the grades and degrees conferred by individual institutions of higher education.

If, as some have suggested, higher education evolves to become more like continuing job skills and career support, it stands to reason that faculty will find students, employers, and the wider public more interested in examining their practices.

Ultimately, "privacy" is about control, and control of a limited space has been the principle feature of education throughout history. Faculties and institutions of learning have generally weathered intrusions into their classrooms, but the prospect of universities "without walls" and "learning anytime and anywhere" could change that pattern. Already some faculty object to having notes of their class sessions published on the Web. They complain that their lectures and discussion sessions are "private" – intended for the audience limited to the time and place of the actual class session. As whole courses move to asynchronous and ubiquitous availability, the private space becomes even more attenuated.

Already some faculty object to having notes of their class sessions published on the Web. They complain that their lectures and discussion sessions are "private" – intended for the audience limited to the time and place of the class session.

Privacy gone

Most faculty, when asked what drew them into academic careers, will answer that they wanted the time and focus to concentrate on the field of study they adopted. The ivory tower or splendid isolation is thought necessary to conduct that work. In the same vein, faculty complain that committee assignments, student impositions on their time outside class, advisory chores, and heavy teaching load intrude on the study that they consider primary.

While the professionalization (and growth) of college and university administration has lessened faculty participation in some tasks, other trends have brought greater pressure on faculty time.

Student expectations about faculty availability have increased, driven by a form of consumerism, in which they expect faculty – their teachers – to make good the expense of tuition. This idea has been to some extent reinforced by the institution in its efforts to assist students in all aspects of their lives while enrolled. The net effect is that the commitment to students as individuals comes into conflict with desire for sheltered time and concentration on scholarship that brought faculty to the profession in the first place.

The advent of networked information and communication has been a major accelerator of the loss of privacy for faculty. E-mail is frequently cited as a major source of extra time devoted to the support of students' needs. Faculty sometimes say, "With e-mail you are never 'off duty.'" Others will say that they deliberately do not respond to e-mail from administrators or colleagues, because they are unwilling to concede that extension of access to them and their time and attention. E-mail seems to bring a strong presumption that a quick reply is appropriate.

The students' access to networked information increasingly means that faculty no longer make the sole or principal choices of information students use to complete assignments. They frequently say that the Web leads students to bring into their academic work extraneous, unfiltered, and unevaluated information – bringing a kind of "noise" into the field of study. The strength of frustration on this point suggests that the Web's information is all too often unwanted competition for the focus that faculty are trying to accomplish with their students.

Focus is further eroded by chiming wrist watches, Palm Pilots, and cell phones. Faculty in Japan, where cell phones are the leading form of connection to the Internet, complain that students distract themselves by surfing, reading e-mail, or playing games during class sessions.

These intrusions are not just inconveniences, they are each to some extent a challenge to the quiet and control – privacy – that is necessary for education. Most of us are only obliquely aware of these problems, involved as we are in the ever-increasing noise, speed, and distractions around us. The overload of information is perhaps in itself a significant threat to the way we conduct education. Whether we can modify our methods to cope with it or to keep the disruptive qualities of the flow of constant information at bay remains to be seen.

And the students...?

Recorded music, television, the Web, the telephone – their lives are too busy also in many respects, at least for the concentration and focus we presume necessary for study. Most of them now have grown up with these distractions and seem unaware of them as impediments to their school work. Even allowing for differences in the adaptations each generation makes to academic life, the competition for students' attention appears very strong from these information sources.

Many students also work very long hours at paid jobs, not unusually almost forty hours, even if they are full-time students and in residence on or near campus. That time commitment, which is often necessary, of course, to pay tuition and costs, detracts from the privacy we traditionally think necessary for education – the solitude and shelter for extended thought.

Privacy is under assault in many aspects of daily life. In some cases it is a matter of annoyance, in others we adapt reasonably well. But for instruction, study, and thinking we need to ask some sharper questions about the amount of competition those activities can endure from the ubiquitous flood of information, to say nothing of the "noise." TW

> **"Telecommunications bandwidth is not a problem, but human bandwidth is. At one point, software magnates had the ambition to put 'information at your fingertips.' Now we've got it, and in vast quantities. But no one will be informed by it, learn from it, or act on it unless they've got some free attention to devote to the information. Unfortunately, most organizations have precious little attention to spare.... Attention is the missing link between 'bloomin' buzzin' confusion' (to use the phrase of William James, an early fan of attention) of the world around us and the decisions and actions necessary to make the world better."**

Thomas H. Davenport and John C. Beck
The Attention Economy (Harvard Business School Press)
2001

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. The campus IT advisory committee does not meet during the summer. But during those months we sometimes face issues that probably should go to that committee. Should we try to get a meeting even though they do not normally meet?

A. *Unless you go into the summer with an agreement to call the committee into meeting if necessary, you might find it very difficult to convene. If it has faculty members, which we'll presume it does, they normally do not expect to be called on for committee work during the summer. If during the spring you are able to look ahead and anticipate issues or situations for which you might want a meeting, perhaps you can make special arrangements. Maybe one member of the committee will be available and willing to be consulted. In any event, it is a good idea to discuss with an advisory committee what will be happening during its off months and agree what consultation, if any, will take place and under what circumstances. The same considerations also apply for January. And, remember that summer is not generally a good time to try to work with faculty; where projects involving them can be scheduled for during semesters, issues of committee consultation will be easier.*

Q. It is always difficult to break bad news to faculty and staff IT users, and I suppose there is no single answer for how to do it. But do you have suggestions about what helps in that situation, and what to avoid?

A. *Data cannot be retrieved from a failed hard disk. A computer lab will not be ready in time for the opening of the semester because of delivery delays. The server backup failed for the third night in a row. We've all had to break some form of bad news to users. Early warning helps, even if an anticipated problem never materializes. On the other hand, waiting until it becomes a disaster for sure is a common mistake in situations that unfold gradually. Wherever possible, it is good to present alternatives and remedies along with the bad news. But no amount of explanation is going to be truly helpful beyond showing that you are concerned. Explanations are better when brief. Do not dig the hole deeper by getting defensive. Offer to escalate the issue, if necessary, before you are facing a demand to do that. And, although this may be difficult, try not to let users vent their anger on you: some care needs to be taken not to allow a bad precedent in incivility to be set.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE
July 2001
Volume 17
Number 4

THE EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Making Better IT Decisions

Summer, for many reasons, is not a good time to make decisions on campus. This is not just because the faculty are officially away from administrative duties and oversight responsibilities – good reason though that is. Nor is it because the students are away. Do we pay any more attention to their views and interests when they are on campus? Vacations decimate the ranks of those who hold the information needed to make reasonable decisions. Something about June, July, and August puts most academics in a reduced state of mind – not hitting on all cylinders. But maybe it is not a bad time to reflect briefly on the decisions we do make, why so many of them are flawed, and what alternatives might produce better results.

Bad decisions do not just happen, at least in the academic world. Rather, we see them coming from quite a distance: lots of time and process, no shortage of consultation and fact-gathering. We take too long to make decisions in higher education, including those for the frenzied world of IT. We are often too conservative, constrained by institutionalized aversion to risk. We are too conventional, unwilling to depart from the trends we find around ourselves. And too often we give in to wishful thinking: "This project has to succeed because ... we've fought so hard to get it approved."

The mistakes we have all made on occasion in academic information technology trace their roots to several deep-running themes. Some of these are endemic to higher education administration in general, others seem special hazards of information technology. Our predilection to look at "best practices" is probably not a mistake in itself, but it does nothing to encourage us to look for patterns in the flawed decisions.

continued on page 3

"Recently there has been a lot of thinking about how to devise intellectual successors to the scholarly monograph that specifically exploit the online environment. One key idea is that while the definitive and comprehensive version of the work will be digital, there will also be a ... 'view' of the work that can be reduced to printed form as a traditional monograph. This is critical in providing scholarly legitimacy in an intensively conservative environment that still distrusts the validity of electronic works of scholarship, and will thus be important in encouraging authors to create these new types of works."

Clifford Lynch
"The Battle to Define the Future of the Book in the Digital World"
First Monday
June 2001

NEWSBRIEFS

DOCSHARE

DocShare is a consortium of staff members at higher education institutions dedicated to producing computer-related documentation and newsletters. The goals of the DocShare Consortium are threefold: to provide a forum by which members can discuss common issues and concerns; to facilitate the exchange of members' internally produced computing documentation and newsletter articles for adaptation or reprinting by participating academic institutions; and to encourage collaboration between member institutions in the development of additional documentation.

A large number of academic institutions support the same computer applications and network services, and yet currently write all of their documentation from scratch, resulting in an immense duplication of effort. DocShare aims to assist in spreading this workload across institutions by providing indexed-access to end-user documentation from contributing institutions.

See http://www.docshare.org.

LIVEREF

A resource put together and maintained by Gerry McKiernan of the Science and Technology Services Department at Iowa State University Library, LiveRef provides a wealth of links related to real-time reference services. This is a great resource for both users looking for an online reference librarian and librarians interested in instituting a Web-based, real-time reference service. The reference "desks" themselves are categorized according to type of organization (e.g., academic, public, other), and users should note that many of the academic libraries offer online help only to those affiliated with the university. The site also includes a hyperlinked bibliography, a listing of digital reference technologies, conferences and workshops, discussion lists, and more.

From *The Scout Report* (July 13, 2001), Copyright Internet Scout Project 1994-2001. See http://www.scout.cs.wisc.edu.

COLLECTIVE EDUCATION AND OPEN SOURCE

Open source projects allow a student to work on software that actually will be used by others and to interact with a world-spanning community of Java developers. The most successful open source projects (e.g., Emacs, Linux, Apache, NetBeans) are ones where the software is highly modular and the APIs are well documented – someone can download the source code and documentation and begin coding without needing to first understand the nuances of the entire codebase.

George Dvorak, "Collective Education," *ACM/Ubiquity*, July 10-16, 2000. See http://www.acm.org/ubiquity.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com).
Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.
ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Making Better IT Decisions

continued from page 1

Delay

Too many decisions in academic IT have been compromised by delay. Staffing increases that were made in the 1990s were clearly necessary during the late 1980s. Yet, on many campuses, the authorization to increase did not come until years after the need was established. High IT staff turnover rates and end-user impatience were among the costs that resulted. Dormitory networking, too, was a foregone conclusion well in advance of being implemented. The protracted install schedules on more than a few campuses tied up staff resources and IT project funding for several summers in the 1980s and 1990s. Replacements of administrative information systems, which have happened at a huge number of colleges and universities over the past five years, in most cases began years later than they should have. These projects, in some cases, were distorted by the squeeze caused by the Year 2000 crisis and in all cases, let outmoded work processes get even further entrenched.

A big factor in these delays was the need to learn how to make the case for strategically important decisions, funding outlays, and "cultural" changes on campus. Too often we were impatient with others' failure to see what seemed self-evident to us. We have learned more recently that to be persuasive and decisive we need to go much more than half-way to draw senior administrators into the light of understanding for these matters. The collective impact of these delays was to compress projects into an uncomfortably hectic span of time in the 1990s, during which talent and money were drawn away from the agenda we are only now catching up with: innovations in instruction, student-centered changes in administrative practices, and construction of coherent information architectures for our institutions.

Neglect of history

Another impediment to good decisions has been the failure to address appropriate precedents and history in campus technology. In retrospect, we can easily see that we could have made earlier and smoother commitments to equip all faculty and staff with standard microcomputers. With a few notable exceptions, colleges and universities were slow to recognize that once e-mail, online library catalogs, and the Web were established, everyone would become a computer user. We had in plain view the history of other institutional support standards: library access, telephone, offices, and professional development allotments – to cite the most obvious of them. We were slow to connect the issue of computers to the essentially egalitarian norm represented by these other services.

> *For too long we believed that IT was a way to improve or assist tasks we already do. As a result, the return-on-investment discussions for equipment, infrastructure, and support staff centered on looking for incremental changes, efficiencies, and evolutions.*

We, the IT specialists, have generally been reluctant to situate computer-based systems and tools with respect to previous advances in the technology of learning and instruction. There were useful comparisons and contrasts to be drawn from the experience with language labs during the 1960s and 1970s. Failure to train faculty and to adapt teaching methods to use those labs doomed most of them to just marginal usage and left many faculty and administrators with doubts about the usefulness of computers and networks.

Lessons were there to be drawn also from the failure of instructional television, which was strongly touted in the 1950s. In that case, the failure to connect the programming developers with classroom teachers stands out as a precedent to avoid repeating.

Too conservative

For too long we believed that IT was a way to improve or assist tasks we already do. As a result, the return-on-investment discussions for equipment, infrastructure, and support staff centered on looking for incremental changes, efficiencies, and evolutions. Since then, we have seen that the important effects of IT in education are transformative.

The impact of ubiquitous information comes in the changed relationship between faculty and students, now that the monopoly on selection of sources has been broken. We did not "sell" IT with that result in mind, but we have discovered that neither learning nor administration have been ameliorated by computers and networked information. Instead, the interesting changes have come where technology has re-defined the familiar and ordinary : multimedia as a new form of scholarly presenta-

continued on page 6

Creating a Good Relatio
A CIO's Most

"The president wants to see you Friday morning at 10:00 for about a half-hour. Can you make it?" The president's assistant, using her most business-like telephone voice, is imparting nothing that offers a clue as to what this is about. As one part of your mind calculates whether you can juggle your already crowded Friday morning schedule and the other part races through the possibilities for the agenda for this meeting, you realize quickly that of course you will be there as requested, no matter what the agenda is. You hope it's good news, but for some reason, your uneasiness tells you it might not be.

For CIOs who have been having a rough time, thoughts such as these might wander through their heads: I heard he's thinking about calling in a consultant to "review IT." I heard he's thinking about moving my position from reporting directly to him to reporting to the Provost instead. I heard he's thinking about cutting off the administrative system implementation because of all the problems. I heard he's thinking about splitting up my department into two or three units and that I would keep only one of them. I heard he is thinking about disinviting me to Cabinet meetings.

Other CIOs might be thinking, I wonder what crazy scheme he's cooking up this time. He just got back from a trip which means he's been reading airline magazines again, and that can only spell trouble. Last time it was about how much we could save by outsourcing the IT department. Even though we never actually did it, I ended up losing some of my key people as a result of just looking into the matter.

Still other CIOs might not have a clue about what's going on, having never even met the president before, or at least not talked to him more often than once a year at the December Holiday party. Why does he want to see me? What could this possibly be about?

And, of course, there may be a few CIOs who are thinking, oh goody, the president is finally going to thank me for all the great IT stuff that's been happening here. I'll have to remember to be humble and tell him how hard my staff has been working and how we really couldn't have accomplished anything without the wonderful help of the IT Steering Committee.

> *In almost every case, the president is the most influential person on campus and his perception of the CIO will spell that person's success or failure.*

The relationship

Between now and the meeting on Friday, there is a lot of time to contemplate some basic principles of this most important relationship. The first is that *it matters how the president sees you.* Make no mistake, in almost every case, the president is the most influential person on campus and his perception of the CIO will spell that person's success or failure. The CIO may have accomplished a great deal, built what he or she thinks is a great department, had many successful projects, and kept within reasonable budget limits, but if the president doesn't see these things – or more significantly, if the president doesn't value them in the same way – it all matters little in the end. The most important measure of a CIO's success is whether or not the president thinks the CIO has been successful.

The second principle is that *you need to know how the president really feels about you and your department.* This has to go beyond wishful thinking or the misleading security that comes from not being openly criticized. The CIO has to know what the president values and how those values are applied to people and to departments. It is very important to remember how difficult it is to confront the people who are causing us problems – we see it every day in our own IT departments. As managers, we will do almost anything to avoid having to tell someone they are not measuring up. The president is no different; there may be clues, but generally, a CIO has to do a tremendous job of self-analysis to figure out whether the president thinks he or she is really doing a good job.

The third principle is that *your relationship with the president ought not depend on the president's level of technology literacy.* It is too easy (and too wrong) to excuse a bad relationship by demeaning the president's IT skills or knowledge. It is up to the CIO to adapt.

A sense of trust

The bottom line is that the CIO needs to build a sense of trust with the president. The president's trust in the CIO is one of the most important factors in how well the institution does IT. What builds trust? It's an elusive quality, to be sure, but there are some elements that will serve to create and reinforce it.

ship With the President: nportant Task

Commitment to higher education. Higher education is a unique environment that needs to be understood and appreciated. A president may admire the sense of dynamic and decisive action associated with a CIO whose background and experience come from somewhere else, but that admiration will fade quickly if the CIO can't adapt to this unique world. Even a CIO whose entire work life has been in institutional settings needs to openly and visibly display an understanding that higher ed is a "larger purpose" endeavor. For a model of how *not* to speak in front of the president, listen the next time your software vendor takes you to lunch and complains about how long it takes your institution to make a decision and how many committees there are.

Communication skills. Microsoft recently backed off its plan to have "smart tags" as part of its newest version of Internet Explorer because the proposed feature was met by a public outcry at its so-obvious, self-serving, unhelpful commercialism. Microsoft backing off is one thing, but one must wonder about what they were thinking in the first place. Is it possible that they did not foresee the amount of public criticism to smart tags? Did they anticipate a flap but think it would blow over quickly and eventually no one would care? It does seem endemic to the technology sector – not just Microsoft, to be sure – to make these clumsy moves, misjudging the consequences, needing to reverse course, and creating at least dismay and at worst, distrust, in those on whom they depend for their very existence – their customers.

And so it is with many technologists, including CIOs. Saying the wrong thing at the wrong time to the wrong person in the wrong way happens far too often – with immediate consequences ranging from angry and unhappy users to dismayed and disappointed presidents; the long-range consequences may be far worse. Being able to hear what one is saying from the point of view of the listener may be the most valuable skill there is. If we all employed this skill to perfection, there would be no glazed look on the president's face while the discussion about networking was taking place.

> *The more the CIO is seen by his or her colleagues to be helpful, intelligent, resourceful, supportive, and friendly, the more the president will see it too.*

One of the most telling signs of whether the CIO is communicating well with the president is the president's expectation level about IT. The right level is a balance between enthusiasm about IT's usefulness and potential and a sense of realism about how much an institution can accomplish, given its resources and time constraints; this level can well come directly from the CIO.

Leadership style. As much as we still toss the word "czar" around, no one, least of all the president, wants the CIO to be that kind of leader. The CIO position is about guidance, collaboration, and influence; it is not about control, coercion, or power. This makes it, of course, a much harder job; in fact, it makes it a lot like being the president on a typical college campus.

High-level thinking. A really excellent CIO knows that what he or she is doing for the institution is not really about technology – it is about helping the institution reach its own goals and objectives. Technology is "just" a means to that end, and certainly most presidents are far less concerned with the details than they are with the high-level picture. That is not to say that a good CIO will hide the truth, but he or she will protect the president's very valuable time by making sure that the truth is writ large.

Other successful relationships on campus. The more the CIO is perceived by his or her colleagues to be intelligent, resourceful, helpful, supportive, and friendly, the more the president will see it too. No matter how large the institution is, it is a small world indeed with at least certain kinds of information bouncing quickly from ear to ear.

Friday's agenda

How about this for the president's meeting? He wants to see you on Friday to ask you to be on the search committee for the new Dean of the School of Liberal Arts. He sees you as such a valuable contributor to this institution that he wants you to take on a task that will have enormous consequences over the next decade or so. He trusts your judgement, he knows you work well with your colleagues, and he can rely on your excellent communication skills to help negotiate these potentially tricky waters. And he also knows that IT is going so well at the institution right now that you can divert your attention for a bit to this seemingly unrelated matter. Can you imagine it? LF

Making Better IT Decisions

continued from page 3

tion and not just a way of supplementing a text document; the Web as an interactive forum, and not just a set of online documents. The expense and tumult of IT are hard to justify for incremental benefits. As Nicholas Negroponte remarked, if we need special metrics to evaluate (or even just detect) change due to IT, we can conclude that we are not seeing a worthwhile effect. The challenge for us is to focus attention and investment on projects that make an appreciable difference.

Substitute rationale

Compulsion to avoid real and imagined dangers particular to campus decision-making tends to short-circuit development of strong, independent rationale for decisions.

A prime example is letting imitation of peer or comparison groups substitute for a local analysis and assessment. How many academic departments have set up computing labs largely because their counterparts have gotten them? To be sure, just about every academic discipline can cite reasons to have a lab. The criterion for having one, though, should be more stringent than just imitation. The better case comes from the wish to change modes of instruction and the investment of time and work to make that happen. The fear of comparing poorly to rival departments and colleges or universities is used too often to substitute for a thoughtful argument in favor of a local decision.

A variation on the thin justification for a departmental computing facility arises when one or two members of a department champion the case without the participation or interest of a substantial number of their colleagues. In this situation, the usual practice is for the others to defer to the enthusiasts and even to express support that is really just customary solidarity; department members tend to stick together even when they are not actually in agreement. But this endorsement does not give a good foundation for an award of institutional funding. While departmental politics dictate a degree of group loyalty, that togetherness often does not extend to instructional practices; a decision for a department does not always translate into a group commitment to follow the decision through.

On the administrative side, inter-institutional competition is frequently invoked to support IT requests. This practice, too, can be a way to dodge the need for good reasoning. For example, commercially designed Web sites: this approach seems expedient because it is easier than doing the work in house. But when everyone learns that design and re-design are on-going tasks, the necessity of internalizing the work finally emerges.

> *One of the unspoken rules on campuses seems to be that only the worst-flawed ideas get discarded; the bar is set entirely too low, resulting in an excessive number of deliberations that we permit to compete.*

The RFP

There are good and bad reasons to follow the protocol of a Request for Proposals. Even where the choice to do one is appropriate, there are many ways still to fail to get good benefit from it. Why do we do an RFP for standard products? Unless we expect the vendor to re-make hardware or software to our specifications, a full-blown RFP, specifying every function and detail, is an empty process. It would be better to pare it back to just those requirements that would directly settle a choice between this vendor's product and some other's. An over-wide RFP, one that tries to touch every conceivable requirement, opens the risk of making a purchase based on inappropriate criteria. The less focused the statement of requirements, the more latitude is left to the vendor to steer your decision.

Better decisions

The best decisions seem to make themselves. Whether viewed as art or science, decision-making is an activity to which one might think we academics would do better or would at least consider worth undertaking with as much thought and rigor as expected of our scholarship. The self-evidently good decision requires a few more dimensions than we normally provide.

We allow too many potential decisions to vie for our attention. One of the reasons why committee work has such a low reputation is probably that too much time is spent deliberating on matters having little prospect of making a real difference. If we made a greater effort to limit the number of initiatives allowed to occupy time and attention, we might have better outcomes for those we do undertake. One of the unspoken rules on campuses seems to be that only the worst-flawed ideas get discarded; the bar is set entirely too low, resulting in an excessive number of deliberations that we permit to compete. Restricting the play allotted to suggested projects or any business requiring decisions would be a strong way to improve the quality of decision-making in total. This principle needs to be applied at all levels of participation, from top administrators to student club committees.

Better consultation

The number of people involved on the way to a decision is not the point. If we stop to ask what issues and perspectives need to be considered for a particular matter, the answers should tell us who needs to be consulted. The list, if generated in this fashion, is almost certainly not the same as results from the standard administrative or governance approach of hearing from those who are entitled by rules or precedent. Nor is talking to fewer people the objective. The paramount criterion should be simply that every topic has its own natural constituencies and cohort of individuals with insights that should produce a better decision. Whether by laziness or cultural constraints, too often we sit around the committee table speculating on the views we might hear if only we asked various people or groups not present. Maybe it would be better to break for a few minutes and make some phone calls?

Setting the conditions

An easy exercise very rarely followed is to take a few minutes at the outset of deliberations to predict what would constitute a successful resolution. This is not the same as guessing the outcome; rather it is to determine when the conversation will have accomplished what is needed. And even if the forecast is not entirely accurate, setting the expectation that fulfillment of certain standards or criteria for closure – a stopping state – can be very valuable.

If there is agreement on the conditions for making a decision, many of the familiar hurdles – whom to consult, how to weigh requirements, and how much information to gather, for example – become less daunting.

Leadership

Someone to guide their colleagues through the thinking and processes towards a decision is a leader. The value of this definition lies in distinguishing between a "decision maker" and a person who is capable of finding the path through the unique circumstances presented by the decision in question. Success is achieved when it becomes clear that no further work is needed; the result speaks for itself and it "sounds like a decision." TW

"The unique problem created by the advent of the Internet is that each and every 'keyword' becomes its own category.... Hypertext has created the desperate situation in which Internet users are awash in a sea of disconnected pieces of data triggered by these so-called keywords. This is not entirely negative, of course: the fun aspect of hypertext is that knowledge can be serendipitous, intrinsically associative, and highly interactive. The downside is that each new thought alluringly propels the researcher through a labyrinth of unrelated connections, an unfortunate situation that underscores two of the most crucial aspects of searching the Web: developing a good search strategy by asking specific questions, and following up by thinking critically about the results."

Rich Cummins
"Choosing the Right Tool for the Job: Searchbots"
The Technology Source
July/August 2001

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. What is a reasonable way to balance considerations in making an internal promotion versus hiring from the outside?

A. *For starters, many institutions have a policy requiring internal promotions – or at least that these be given priority – where candidates exist. To the extent that you have true latitude to make the choice to hire inside or outside, there is quite a range of things to take into account. In some respects, internal promotions carry a higher risk. This is the home turf of the "Peter Principle": that employees rise to the level of their incompetence. In the case of an internal promotion, you are betting that the person will not top out in the new job. The success or failure of a person newly hired from outside is a substantially different matter. The insider might be seen (by colleagues) as stepping up to a well-deserved opportunity; or that person might instead be thought to be over-reaching. You can reduce the risk when making an inside promotion by making sure that the right kinds of support and training are put in place for that person. You might also think about a face-saving fall-back if you think the step up is something of a gamble. Inside promotions can raise morale by showing that there is a job-step reward for talent and performance. Outside hires bring the benefit of a fresh individual and an infusion of new ideas.*

Q. How valuable is call-tracking software for the small help desk – fewer than six people?

A. *As with any data base, the pivotal issue is the balance of labor to create and maintain it compared with the value of what can be done with what is retrieved from it. To start with the outcome, if calls can be closed faster (and successfully, of course), then the value is high. No other results can possibly warrant the expense and trouble of the data base. Regarding the labor and cost of running it, the single best investment is to load it with demographic details derived from other data bases. Names, office locations, and phone numbers from the Human Resources information system related to computer/software inventory data are the ideal core. Experienced help desk managers report that if those data are not on the screen when a help call is being answered, chances are very low the technician is going to ask and enter it; you will have a constant, losing battle to compel staff to capture that information – and you will not be closing help calls at the rate you want.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

August 2001

Volume 17
Number 5

THE EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

We Have All Our Courses Online. Now What?

by Howard Strauss, Princeton University

There have been some very exciting things happening here at Euphoric State University. We have been trying for some time to get all of our courses online without much success. Of course by online I mean on the Web. Today, if something is not on the Web – at least for students – it might as well not even exist. For faculty, "online" seems to mean that they can use e-mail in their courses and that those photocopied handouts they used to distribute to their classes can now be obtained from the Web. Our IT staff thinks that having a course online requires having lots of pedagogically useful material on the Web, or at least *something* beyond the course reading list.

Our problem is that it is just too hard to get faculty to become experts in HTML, Java, JavaScript, DreamWeaver, Flash, FrontPage, Perl, and XML; to become competent in the basics of good online design and online pedagogy; and to become world-class graphic artists. Nonetheless, some folks here at Euphoric State do not feel these are insurmountable obstacles and are determined to teach faculty HTML, FrontPage and the like anyway. However, most of us know we need a better solution.

When our IT staff builds world-class online courses for our faculty, even with our most talented IT people, it takes at least a person-year to build a single quality course. Our parabola Website took four person-years to build, which is not that unusual. And once we build a course we need to maintain it, which is an increasing burden until we have to nearly completely rewrite it in five years

continued on page 3

> **"The dangers of edict are well known. Mandating that all faculty will have a Web presence for each course and requiring all faculty to develop distance courses are inflammatory actions to faculty. Faculty accept few mandates concerning teaching. Consensus on required Web publication of course materials is out of reach for now, given the many associated issues of academic freedom and intellectual property. Edicts that get too far ahead of faculty support for an idea are rarely successful, except in stimulating the invention of all kinds of clever strategies for noncompliance."**
>
> David Brown and Sally Jackson
> "Creating a Context for Consensus"
> *EDUCAUSE Review*
> July/August 2001

NEWSBRIEFS

CENSUS 2000 SUPPLEMENTAL SURVEY

At this site provided by the US Census Bureau, you can investigate the much-talked-about results of the Bureau's 2000 Supplemental Survey (2000 SS) released Monday. Survey results indicate that American standards of living increased markedly throughout most of the country in the 1990s, bringing many Americans larger houses, higher incomes, and more cars. The data also show that nearly 1/5 of all Americans do not speak English at home, about 530,000 homes lack plumbing, and that over 2 million grandparents are raising their grandchildren. The 2000 SS homepage links to pages on the survey's methodology, a sample questionnaire, and the actual data, which can be reviewed in either a narrative "plain language" format or as tables. Comparisons with the 1990 census are available.

See: www.census.gov/c2ss/www. From *The Scout Report*, © Internet Scout Project 1994-2001.

E-BOOKS AND THE LIBRARY

What will make e-books a viable part of academic library collections? What features, rights, business models, hardware and software standards are needed to meet the goals of large academic library systems to support open scholarly exchange? The University of California's California Digital Library formed an EBook Task Force in August 2000 to investigate the e-book market and develop guidelines, principles and strategies for making e-books a viable part of the University's digital collections. Primarily concentrating on the commercial availability of e-books, the Task Force researched the state of the e-book market by participating in e-book vendor trials, conducting literature searches, attending conferences and workshops, and surveying several academic libraries about their e-book experiences.

Lucia Snowhill, "E-books and Their Future in Academic Libraries," *D-Lib Magazine*, July/August 2001.

AFTER GOOGLE

A new generation of scrappy search engines is emerging to challenge the dominance of mighty Google. Google became a huge Web favorite because it's simple and it works. It has the largest URL database and it often returns highly relevant search results. And if Google has any real fault, it's that it returns too many results – the bane of most search engines' existences. Now there's a whole new generation of search engines trying to find new ways to top Google's accuracy or optimize the way that results are organized to make them easier to go through. Some of them want to beat Google at its own game of being the universal search engine; others simply want to be specific research tools, increasing the depth while reducing the scope of a search.

Angel Gonzalez, "Searching for Google's Successor," Wired.com (August 14, 2001).

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com).

Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.

ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Our Courses Are Online ...

continued from page 1

because it is out of date and because the hardware and software have radically changed. At Euphoric State we offer about a thousand courses each year. Even if we were to devote our entire Web services staff of ten people to this task it would take us at least 200 years to get all of our courses online, and that ignores the burden of maintenance. Almost no one here believes this is a viable approach although we continue to devote considerable staff to the effort.

A few years ago we decided to build a simple, easy-to-use, user-friendly Web-page generator for faculty. We called it AcademicProductionLine or APL. We advertised APL widely, taught courses on how to use it, and assisted faculty when they needed help. Unfortunately APL was not the great success we hoped it would be. Faculty who tried it – and there were very few of them – demanded new features almost immediately. They had us almost continuously updating APL. It just wasn't worth the effort for the 50 or so rather simple Web pages that faculty built with it over three years. By then we could not withdraw support for APL because the few faculty members who did use it were very influential and insisted on continued support for their APL Web pages.

The CMS

It was at about the time we were giving up on APL that we learned about course management systems such as BlackBoard, WebCT, and TOPS – The Outstanding Pedagogy System. Course management systems claimed to be able to make it possible for faculty to put their courses online with very little help from our IT staff. Vendor demos convincingly showed us that a faculty member who could just use Notepad or MS Word could have stuff online nearly instantly. And course management systems also included all of the critical communications facilities essential for a course, including e-mail lists, chat rooms, discussion groups, user forums, and more. We tested all of the course management systems. TOPS came out on top; we adopted it and installed it.

> *Even if we were to devote our entire Web services staff of ten people to this task it would take us at least 200 years to get all of our courses online.*

We launched an extensive TOPS training and marketing program. Most of our training was one-on-one in faculty offices, but we also trained many graduate students as TOPS trainers. While the results of this enormous effort were rewarding they were far less than our expectations. One hundred and eighty six courses were on TOPS in the first year, almost four times the number of courses we were able to get on APL in three years. But this was still only one fifth of all our courses online and this improved only a tiny bit the next year.

Little more than . . .

A glance at the courses that we did get online revealed that most were little more than course descriptions, reading lists, syllabi, and the like. Faculty we interviewed said that it was still too hard to get started even on a system as easy as TOPS. To solve that problem we had our IT staff take all of the data we had on courses from our student systems and copy it to TOPS for all one thousand courses and seminars we teach each semester. We also built e-mail list for all courses and automatically updated them every day.

For our students this was a wonderful thing. For every course there was the same TOPS Website with the same communications infrastructure, class lists, and faculty descriptions with the same user interface. For most faculty this meant that with no effort at all they had their courses online and could e-mail to all students. To do much more they had to edit the courses we automatically built for them.

All the courses

With much local fanfare and carefully placed articles in several journals of higher education we proudly announced to the world that Euphoric State had all of its courses online. All! One hundred percent! No exceptions! We should have felt wonderful but in fact we found ourselves right back where we had started. While about a third of our faculty did modify the tiny amount of information we automatically created for them, two thirds of our faculty didn't even do that.

What's Euphoric State to do? We have all of our courses on line. Now what? Now we need to find a way to get lots of pedagogically correct, affordable online content into the great communications infrastructure provided by our course management system. Or do we?

continued on page 6

Howard Strauss is manager of academic applications at Princeton University and a frequent contributor to this publication.

What part of the CIO job description pins down the expectations for leadership? Rarely can even the closest reading of that document shed much light to answer the question. To be sure, phrases like "provides leadership ..." are commonly used, but those are usually self-referential – nodding at a concept we all agree is good and necessary without advancing our understanding of what is required. One of the challenges facing us as we think about the CIO role is to find ways to talk usefully about just what constitutes leadership in the context of information technology in higher education now.

Every CIO needs to reflect, "Am I a leader? How do I interpret this role for the time and context in which I am working? This is not necessarily an exercise in introspection. Nor is it an evaluation of character. Think of it instead as a way to get beyond the abstract idea ("leadership") and understand the tasks it implies. These will vary almost infinitely with the circumstances of institutions, their agendas, histories, resources, and cultures. They will also play out differently for the individuals involved. And so, our discussion of leadership aims to explore and elucidate issues, rather than set down a standard for conduct.

Beyond managing

A leader is something different from a manager or director, though those might be other parts of the job description. A manager makes decisions with regard to people, work, and processes. Managers deal with tasks and objectives – working to assure discrete accomplishments. A director is concerned with the coordination of people and activities, ensuring that a path is followed, that goals are met, and that in the exercise of management we do not lose sight of those aspects of work that are not so easily reduced to tasks.

Vision

One of the most common occupational hazards for CIOs is to get excessively absorbed in management or even in directorship of IT. The CIO needs to have the best view of what to be doing and to assure that actions informed by that view take place. Moving from vision to accomplishment might be a short form of stating what the leader in the IT scene is expected to contribute that is not a matter of management or directorship. And, by implication, it is entirely possible – all too common, actually – for a CIO to oversee good management and direction and still fail to do the essential job of leadership.

> *The CIO needs to have the best view of what to be doing and to assure that actions informed by that view take place.*

A kind of myopia can occur where the focus of a CIO's attention does not extend beyond the already-understood and the already-decided. Real vision consists of seeing things as they really are. It is easy to let the routine and familiar obscure the facts. Symptoms of this problem include the co-existence of multiple, contradictory accounts of what is the IT agenda on campus, what are the problems, and what progress is being made. Other signs of a lack of discerning vision are lack of clarity about how well or poorly different IT constituencies are faring: we don't hear much from the Geology department these days, so they must be doing fine. Maybe they are having real problems but have given up hope of help; perhaps they are in fact not having problems but also not making much headway in evolving their instruction to use IT; or maybe their silence comes because they are busy making plans but have themselves lost track of the need to see where the rest of the institution is going in IT and what they need to do as a consequence. .

Vision does not have to mean dreams or grandiose ambitions. It starts with seeing things as they are. Proceeding from that clear view of the present to thinking about what the future might be is one of the fundamental expectations we have for our leaders. But there is an immense need for fact-finding–discovery and verification that has to precede effective planning for the future. We find all too often that an institution makes plans that seem reasonable enough on paper but are seriously flawed because they do not match the reality on campus. Ensuring good vision and discernment is arguably the first and most important job for a CIO.

Action

The other pole of responsibility for a CIO is action. We know that there are almost infinite reasons to explain things do not happen, delay becomes the norm, complications build up and choke off any movement – all of these despite good intentions and even good planning. It is quite simply the CIO's role to see that the things that need to get done in IT actually happen. Doing this requires setting expectations, exhorting, encouraging, and scolding – whatever is necessary to ensure that obstacles are knocked down.

Again, the hazard is to become so immersed in the details as to lose the fundamental role. We know that there will be no shortage of people, at all levels of organization, who will attest to problems and make the case for accepting delay or inaction. A CIO who cannot remain somewhat distanced from that perspective on work inevitably comes to accept the impossibility of pushing things through to conclusion as planned – that or else he or she becomes frustrated and hostile in response to the natural drag on forward movement.

Making things happen

Connecting vision to action is the core of the CIO role. Building that articulation is where the art and craft of the profession come into play.

If we set aside for a moment the obvious requirements to know the state of thinking and practice in the IT field and also the specific disciplines of knowing how to budget and plan, we find some easily overlooked skills that have to be brought to bear.

We rarely talk about this so directly, but there is simply no substitute for the power of persuasion. This means speaking and writing in a manner calculated to win others' minds and wills to correspond to your vision and plans for action. One of the reasons why committee work is so widely denigrated is that too much of the speaking and writing in those forums happens without adequate concentration on the need to persuade. We delude ourselves into tolerating too much aimless discourse; as a result, we tend to devalue the whole process, when we should instead have much higher expectations. We value "communication," an essential activity, but undervalue the importance of pushing through to conclusions.

Persuasion is an especially difficult matter in IT for the obvious reasons that it is all new and the costs are high – the consequences of error can be fearsome. But as one of the newest areas of activity in a very conservative world (that of academe), IT people are often loathe to appear too certain or aggressive. Of course, other decision makers on campus who see IT as a worry or competitor have their own reasons to resist forward movement in IT, and they will protest if pressed too hard toward persuasion.

> *Connecting vision to action is the core of the CIO role. Building that articulation is where the art and craft of the profession come into play.*

But aiming for more consistent progress from vision to action is exactly what CIOs need to do. There were numerous indications during the last years of major IT infrastructure-building during the 1990s that senior administrators grew impatient with their CIOs, feeling that the process took too long, and that more cogent, systematic, and persuasive advocacy by IT leaders would have served the institutions better. This, of course, is bittersweet news to CIOs who felt their reasoning had been falling on deaf ears – but this pattern was repeated widely among institutions during that era.

Related skills

Once we have identified the need to be persuasive, it is easy to fill out the list of other talents a CIO needs in order to be effective.

Teaching comes first to mind. We know that we can count on the fingers of one hand the people on campus who know a switch from a router from a firewall. And probably none of those individuals are the peers or administrative superiors of the CIO – folks who will decide on requests to spend hundreds of thousands of dollars on such devices. Few other areas of academic administration are deliberated against such a background of ignorance. And so, the CIO needs to lead a massive and continual teaching project; he or she needs to be a highly effective teacher.

Courage is helpful, too. Its sub-components (if indeed we can talk about it in these terms) are: tenacity, perseverance, patience, and integrity – which means sticking to the truth and also keeping issues correctly framed.

Reason, also, is indispensable. It consists of logic, balance and proportion, common sense, restraint, and humanity. Being able to hold on to these qualities in the heat of conflict (or the chill of boredom) is essential to good leadership.

What, then, do we need in a CIO? What should we hold up as standards for hiring and promotion? How should our ads read? What should our hiring committees weigh? What experience prepares a CIO? How do we need to adjust our conceptions of our own profession? TW

Our Courses Are Online ...

continued from page 3

At a faculty meeting one professor said that instructional technology had promised a new world of teaching and learning and had delivered little more than e-mail and Web browsers with personality disorders. In the end learning is a very personal, internal thing, they said, and it has been going on since the first humans walked the face of the Earth and will continue to happen long after the Web is just a distant memory. Moses, Machiavelli, and Nelson Mandela never learned anything from a PowerPoint presentation and they did just fine. So will our students.

While the faculty may have made some good points, they are never taken too seriously at Euphoric State, and besides, there are very strong arguments for the use of technology in instruction if we could just do it right.

Interactive learning

What is a good online course? A good online course is not a lecture or a book online. It doesn't just try to pour information into a receptive or unreceptive brain. Instead, it creates an interactive learning experience where the student is in control, can go at her own pace, and can freely explore where the learning experience takes her. It uses the intelligence, memory, and connectivity of a computer to create the pedagogical ideal of a "guide on the side" which coaches, cajoles, and comforts a student struggling with a cornucopia of new ideas.

How do we expect faculty to create these online courses? By and large we don't. We custom-build courses for them one at a time like custom cars. And like custom cars, they can be everything a faculty member wants if cost is no object. But cost does matter as does time. Therefore we need to reserve this technique for a very small proportion of courses, if any. At very least we need to use some standardized software modules in these custom Websites.

If left alone with a course management system faculty can enter their own plain text, as many do. Forget anything as complex as bold text or bulleted lists. They are not supported. Faculty can also link to an MS Word document or other text processing document. Potentially this should allow some nice documents that include images, gif animations, backgrounds, hypertext links, audios, videos, and all of the other things that MS Word allows in a text document. Just one mouse click can turn most documents into a Web page. And with two mouse clicks and some inexpensive software, almost any document can be converted to a PDF document preserving its exact format. But few people really know the capabilities of their text processors; most don't know these features exist. Whatever else we do, we should at least teach our faculty how to use the word processing software they already have. It does not solve every problem, but it is far better than having them start afresh with some new software package.

What is a good online course? A good online course is not a lecture or a book online. It doesn't just try to pour information into a receptive or unreceptive brain.

Course cartridges

Several textbook publishers have taken their textbooks and converted them to electronic format suitable for inclusion into a course management system. They typically include all of text from the book plus additional exams, multimedia material, and simulations. Collectively this material is called a course cartridge. Currently there are very few course cartridges available, but the quality is superb. Clearly there were many person-years of effort expended to produce each one. While Euphoric State's IT department cannot afford to do this because our market for a course is just a few professors – and sometimes just one – textbook publishers can afford to spend huge sums of money because they expect that the cost will be spread over many thousands of students who will use it. Rather than being like custom cars (the Websites created by our IT staff), course cartridges are like the Fords, Chevys and Toyotas that roll off the production line.

The best part of these course cartridges is not the textbook text or even the online illustrations. It is the simulations. The simulations, whether about the quantum mechanics of atoms or the workings of a democracy, allow students to learn by experimenting, asking "what-if" questions, and trying the thinkable and unthinkable. Students soon develop quantum-mechanics intuition. They can anticipate what's likely to happen in some new situation because they have likely tried something similar. The simulations are also the hardest things to write.

With MS Word documents our faculty could learn to do the text and image part of course cartridges – though if a suitable course cartridge is available they should use it instead. The interesting assessments and quizzes in a course cartridge are part of the course management system already or can easily be added. This is well within the ability of faculty to do. But simulations, the most important part of online pedagogy is beyond the reach of virtually all faculty outside of engineering and computer science.

Possible solutions

One solution is to borrow material done by other people. Many collections of interesting material are available. Merlot at www.merlot.org is one of the best. Want to learn how human hearts sound with various diseases? Merlot will send you off to www.wilkes.med.ucla.edu/intro.html where you can listen again and again until the sounds are second nature to you. With considerable work you could incorporate some Merlot material into your own Website. Since this can be so difficult, you'll most likely just link to it, though that may not be the best choice.

Another solution is to convince creators of course cartridges to make them cheaply available to higher education. Since this will not help textbook sales they are not likely to do it, and even if they were to do it, it would still be very difficult to include the simulations as an integral part of a Web course.

MESA

One last possibility is for universities to build a simulation library themselves. No one university could afford to do it or would even the have the expertise to do it. Euphoric State, for example, has no law school and would therefore not be able to contribute to building legal simulations, but we could do great things in Physics or Math. But why would these simulations be any easier to use than those found at Merlot or at a textbook publishing company? Because the consortium of universities that creates the Multidisciplinary Educational Simulation Archive (MESA) will have planned for its usability by ordinary faculty from the start. By spreading the work out across many universities, having universities work in areas where they have the greatest expertise, and by sharing the common MESA library we could quickly create interesting online content that anyone could include in their Website.

Faculty need to be able to publish their courses on the Web. In most cases building custom sites is prohibitively expensive. We should encourage the use of course cartridges and material available from sites such as MERLOT. We should see to it that faculty really know the capabilities of their word processors for creating documents and Web pages and try to avoid teaching them new software packages. And we should form a consortium to build a MESA library. Now that all our courses are online, Euphoric State believes that these are the next reasonable steps. We just need other universities that will join us in making MESA a reality. ▪

> **"The influence of hypertext on education will come about because of and through the World Wide Web. It is amazing to me how quickly and easily the computer, the Internet, and the Web are being accepted into American education.... This could be significant, when we remember that American education has been principally verbal for centuries. Learning to read and write (words) has been the center of the educational process. I'm not predicting that verbal literacy will cease to be important, but I do think that visual literacy may begin to claim a place in our educational programs. "**
>
> Roy Christopher
> "FutureText: Jay David Bolter"
> frontwheeldrive.com
> April 1, 2001

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. **What further study and formal professional development will help my chances of promotion in IT management in the academic setting?**

A. *Management and leadership positions at all levels in academic IT organizations still attract people with a bewildering range of backgrounds and formal education. But the persistence of this free-for-all in credentials should not lead people to assume that one path to advancement is as good as any other. It is useful to look at the skills that seem to be in short supply and that handicap IT organizations: budgeting and planning, project management, and personnel recruiting and development – to mention but a few of the obvious ones. Of course, strong technology background is still very much in demand at all IT shops, which keeps technical training at a premium among all credentials. And, people who can work with faculty as peers in instruction are still very much in demand. Among academic and professional degrees, some MBA programs are likely to be good career investments. So also the information management degrees that are springing up in computer science and library disciplines. But most other graduate degrees probably take too long and have too little direct impact on IT career credentials to warrant their large investment in time and effort.*

Q. **With the start of the fall semester, once again we are training student workers and trying to motivate them to stay on the job through thick and thin. Any suggestions on how to make that appeal to them?**

A. *You can start by forgetting the common workplace "motivators" that are the standard of the "adult" workplace in general: fear of being fired, urgent need of income, and the social disgrace of being unemployed. These don't seem to affect student workers strongly or predictably. They do respond amazingly well, though, to work that teaches them useful skills, time and attention paid to them by professional staff co-workers, and – above all – r-e-s-p-e-c-t. Do you give your student workers the room to grow and to expand their range of responsibility? Do they get close enough to the professional staff to learn why we think IT is fun? Are you helping them build the skills they want for after graduation? The IT shop can be an educational enterprise within the college or university, appealing to students on the same criteria that led them to enroll in the first place.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE EDUTECH REPORT
September 2001
Volume 17
Number 6
The Education Technology Newsletter for Faculty and Administrators

Hot Issues 2001–2002

Making Headway

Every year since it began publication in 1984, September's *The Edutech Report* has had a roundup of the Hot Issues for the coming academic year, based on subscribers' responses to a survey we conduct. (Similarly, EDUCAUSE has conducted its own comprehensive survey for some time now on the "Top Campus IT Challenges" for the year.)

In a somewhat different format this August, we asked our subscribers what steps they had taken during the past year that represented real progress toward addressing their institution's top issues: a problem solved, a service introduced or enhanced, a technological tool installed or ironed out, a policy issue resolved. In this article, we are calling these "turning points" – we think they represent significant breakthroughs. We hope the answers to our survey will be a way for institutions to benchmark where they are compared to others, to compare how they have applied their priorities, and to find encouragement in these successes.

Online learning environments

Turning point: *"Our institution recently rolled out a standard online learning environment that is available to all faculty and in all courses."*

Many of the institutions we spoke to have moved beyond the worry that online learning diminishes or displaces traditional person-to-person teaching methods. The institution either has made a commitment to providing courses that are conducted entirely on-

continued on page 3

> **"A university's chief financial officer may view distance learning as a mixed blessing, offering a possible reduction in unit costs in the long term but with potentially severe upfront expense. A dean or faculty chairperson may regard distance learning with enthusiasm that is tempered with concern about faculty workloads and rewards. The individual faculty member may worry about being supplanted someday by a virtual teacher."**
>
> Stephen Ruth and Jiwan Giri
> "The Distance Learning Playing Field: Do We Need Different Hash Marks?"
> *The Technology Source*
> September/October 2001

NEWSBRIEFS

APPLE AND MICROSOFT SERVICE COMPARED

Yet one more installment in the Microsoft-versus-Apple debate, this article by CNet reviews the two biggies in terms of tech support, giving report cards on standard documentation, online help, and phone support. The results? Both companies get a "B" overall, with Microsoft proving better for customers with more advanced or complex queries and Apple better for those who have more basic questions when they first receive a product.

"Microsoft vs. Apple: Tech-support showdown"; see Cnet at home.cnet.com/software.

From *The Scout Report*, Copyright Internet Scout Project 1994-2001. http://scout.cs.wisc.edu/

THE SEEKERS

Students in modern societies can be classified into three groups, namely the "certification seekers," the "degree seekers," and the "knowledge seekers." The certification seekers are those students who prepare for and pass one exam after the other and obtain a series of certifications that prepare them for a variety of jobs in the field of information technology. Students in this category generally begin their careers performing trivial technological tasks and move up the ladder into more important positions after they obtain more and more certifications.

M.O. Thirunarayanan, "The Seekers." *Ubiquity*. See: http://www.acm.org/ubiquity/views/m_thirunarayanan_5.html.

EFFECTIVE PRACTICES

Have you implemented an effective practice related to managing or using information technology on your campus or used technology effectively to solve a problem? Or are you looking for a solution to an IT-related challenge and wondering how your colleagues are addressing the same challenge?

EDUCAUSE has developed an Effective Practices and Solutions (EPS) service to promote the sharing of practices and solutions implemented on campuses for the management and use of information technology. The service is member-driven, relying on submissions posted by EDUCAUSE members. Its objectives include providing a sense of "who is doing what" in campus IT and also bringing to the attention of EDUCAUSE planners of professional development activities interesting new content and contributors.

The EPS data base is browsable by topic, institution, or subject hierarchy and accessible by search engine.

See: http://www.educause.edu/ep.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). **Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.** **ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.**

BEST COPY AVAILABLE

Hot Issues: Making Headway...

continued from page 1

line, or it has decided not to go in that direction. Either way, the institution has often decided to provide a standard online environment that can be used to enhance any standard course. Although the industry often calls these products "instructional management systems," that probably overstates the controlling nature of the role that many institutions give to them. They are more servant than manager.

The idea is that using online resources in the standard curriculum will only have a serious impact if it is done programmatically rather than just by inspired individuals working in isolation. A big step toward this is to settle on a standard online learning environment that will automatically be available to every instructor who wishes to use it. That way, each instructor does not have to reinvent the wheel, and students do not need to learn a new environment for each course. The online learning system can be linked to the campus information system to automatically load information about students enrolled in each course.

Big variations still exist among institutions. One important difference is how much encouragement and support the institution has been able to provide for individual faculty who are interested in taking advantage of this technology to supplement their courses.

Computer and Internet-friendly classrooms

Turning point: *"Our campus recently added substantially to the number and quality of electronically enhanced classrooms."*

Some of the campuses we talked to have done substantial construction or renovations to add electronic classroom or lab space, driven by faculty requests. Most are at least upgrading classroom computer displays. The computer projector is one of the technology products that is still undergoing big technical improvements. The new, desirable standard calls for a brightness level that lets the projector be used without darkening the room, XGA resolution, and ease of use that reduces the need for technical support. Typically, these classroom facilities are still very expensive and their numbers on most campuses still do not match the demand from faculty.

> *Big variations still exist among institutions. One important difference is how much encouragement and support the institution has been able to provide for individual faculty.*

The variations among institutions: some institutions have emphasized putting computers for students into these classrooms, others have provided hookups for students to bring their own laptops, many have only provided a hookup for the instructor.

Providing faculty with an adequate way to project a computer screen for their classes remains one of the biggest claims on capital funds.

Self-service

Turning point: *"Our new standard is to provide as many services as possible directly to students using a Web browser. We have upgraded our campus information system primarily to make this possible. Registration has just come online, degree audit is next, and we are preparing for e-commerce."*

This is another instance in which many institutions have moved past an "either/or" debate. Most institutions wish to maintain a personal relationship with students and are very concerned about providing a human "safety net." Far from impersonalizing the relationship, online self-service is seen by these schools as a way to provide even better service, augmenting traditional offices, counselors, and office hours rather than replacing them.

Some institutions have started by adding a front-end to their existing information systems. Many institutions have entirely replaced their legacy systems with modern ERP-style systems as a more thorough and cost-effective way to transform their service levels.

Network

Turning point: *"We just finished upgrading our network to switched 100 Mbps to the desktop, Gigabit Ethernet backbone, and a multiple-T1 Internet connection."*

Ubiquitous network connections are now taken for granted, to every pillow, every desktop, and even to locations where students gather and work. Institutions are now making serious commitments to providing really useful amounts of bandwidth at all those connections.

Demand has grown enormously because of peer-to-peer applications (such as music sharing), instruc-

continued on page 6

Leveraging Your Institution's Inve

To leverage an investment is to capitalize on it, to enhance it, to increase the chance of beneficial outcomes, to ensure that major investments pay off in major ways. Leveraging goes beyond managing IT resources and allocating IT services. While managing involves keeping the cost/benefit ratio stable and requires skilled diligence, leveraging involves maximizing the benefit side of the equation and requires lots of creative imagination.

A primary and extremely important part of the CIO's job is to leverage his or her institution's investment in information technology. As we know, this investment is typically large – in fact, it is uncomfortably large at most colleges and universities. And a good deal of that investment may have been made on faith, causing even greater discomfort – faith that it will eventually pay off in some as-yet-unknown way. Making sure, therefore, that there is major institutional payoff, and that the institution's decision-makers can see just where and what the payoff is, is extremely important. And no one else within the institution is in a better position to provide this leverage, given the CIO's understanding of both the technology and the institution itself.

Colleges and universities have expended money on many different kinds of IT-related items, but the four major investment areas tend to be desktop equipment; campus networking and facilities; IT staff; and administrative/campus information systems. For the typical institution, this list is in order of most-to-least payoff so far.

Desktop equipment

Desktop equipment has become pretty much ubiquitous (although many would say that what is on their desks is far from what they really need or want). Nevertheless, only just a few years ago, the thought of having a one-to-one ratio of equipment to people on campus was an unrealistic goal; now it is at least attainable at most institutions within a relatively short period. Gone are the days, thank heavens, when a computer had to be "justified" and a too-meager yearly equipment budget was parceled out by a committee to cover all the requests.

And from all evidence, this equipment is being well used, for the most part. We don't hear much now about faculty using them as flower pots or door stops, but we do hear a lot (and quickly and loudly) when the campus e-mail system goes down. So the benefits are there, especially in the productivity area, and if we can get past our silly discussions about Word-or-WordPerfect, they certainly will continue to grow.

> *Making sure that there is major institutional payoff, and that the institution's decision-makers can see just where and what the payoff is, is extremely important.*

But the one area that prevents the kind of return-on-investment that we really need and should expect is the lack in many institutions of a replacement plan. A replacement plan is not just to make sure that everyone has equipment that is up-to-date and powerful – although that is reason enough – but it is also to make sure that there is some compatibility among systems, especially within a department, but also across campus. We're not suggesting that everyone's equipment has to be identical, and yes, the PC-Mac wars are still uselessly raging in some quarters, but the variance in capabilities among machines that are doing similar work needs to be within a relatively small range in order for one of the most important benefits of all this desktop equipment to accrue: information sharing. The more variability there is (even in items such as operating system versions), the harder it is to share and collaborate.

It is a major part of the CIO's responsibility to make sure that the institution's large investment in this area is both protected and leveraged by seeing to it that there is a regular replacement cycle, a method of cascading usable equipment, and a compatibility strategy.

Campus networking and facilities

Most of our campuses are mostly networked. That's good. But the remaining gap is arguably in the most important area, if we are to really see the transformational effects of technology that so many of us have been predicting: the classroom. In the zeal to get the dorms wired so the institution wouldn't fall behind competitively, and in the eagerness to make sure the administrators were linked together so they could run administrative systems, many colleges and universities left the classrooms for last. Even today, it often requires building a new building or doing a major renovation in order to ensure that classrooms are networked.

In addition, there are far too few "smart" classrooms. It is ironic that

Now available in HTML!

The Edutech Report is now available through your e-mail in HTML format. Many subscribers have already signed up for this service!

If you would like to receive the newsletter each month via e-mail, just let us know by sending a note to format@edutech-int.com.

Be sure to include your e-mail address and tell us if you would like the HTML version in addition to, or instead of, your paper copy.

If we don't hear from you, we will continue to send your paper copy, as usual.

If you have any questions or comments about your subscription or about the newsletter, please write us at feedback@edutech-int.com. We would love to hear from you!

so many faculty have been pushed by the administration, and often even by their students, to incorporate technology in their classes, and yet when they are ready to teach their newly redesigned courses, there is nowhere for them to go. The numbers of classrooms that are technology-ready are still far too few. How can we expect to accrue the benefits of classroom technology with this handicap in place?

The demand for multimedia- and technology-ready classrooms has been outstripping the supply for several years already and the CIO needs to fix this. He or she needs a plan to make sure that *all* classrooms are smart classrooms, even if they will not all be used that way all the time. This is not a matter of if-it-will-happen, it is a matter of when-will-it-happen, and the CIO should have a concrete plan that recognizes this reality in place.

IT staff

Our campus computing services departments are filled with highly skilled and well meaning people. But this has come at a high price. For many institutions, the personnel line is the single largest component of the IT budget, especially if one adds in staff benefits. Yet despite the large expense, there are high levels of user dissatisfaction on many campuses with the IT department. Why? Three reasons: attitude, attitude, attitude.

Providing IT to the campus is about providing *service*. That's what users expect, that's what they want, and that is exactly what they need if they are going to have the opportunity to do their own leveraging of IT investments. But too often, IT departments see their primary role as providing technology, with the service component firmly in the back seat, if there at all. There is a palpable sense of arrogance and paternalism in too many campus IT folks, along with the self-serving attitude of we're-the-only-game-in-town, and this has all resulted in a very large amount of frustration in too many places. There is no question that this attitude, and the relationship that develops between users and the IT staff as a result, has held back progress in user departments, both among faculty and administrators.

On most campuses, the CIO has the IT department as part of his or her responsibilities. It is clearly, then, the CIO's charge to make sure that a service orientation among the IT staff universally is clearly expected, well defined, regularly measured, and generously rewarded when displayed. One single question should define the behavior of IT staff under all circumstances: If the users had a choice, would they come to (or come back to)this IT department? The CIO needs to make sure the answer is always yes.

> *Whether written in-house, based on a commercial product, or a blend of these two, far too many systems today are being used by their campuses to do little more than basic data processing.*

Administrative information systems

In general, the area of administrative systems has had the least payoff compared to their expense. Whether written in-house, based on a commercial product, or a blend of these two, far too many systems today are being used to do little more than basic data processing. Even though we have seen much growth recently in Web-based applications, especially for students, the gap between what a modern system can do and what most campuses have them doing is enormous. Given that most institutions with modern systems today have spent a small fortune in acquiring and implementing them, this is nothing short of tragic. In addition, the investment has involved much more than just dollars; the time (sometimes measured in years) and energy of many on campus also needs to be taken into account.

There is much that explains this situation, but the important thing now is for the CIO to change this as soon as possible. Campus stakeholders need to become fully educated in what these modern systems are capable of; they need to know the ability of the systems to provide, among other things, excellent student services and high-quality information for decision-making. Also, many on campus need to be generously supported in learning how to make specific use of the system through what is likely to be a huge amount more of training. And efforts need to be undertaken to take a fresh look at, and change where appropriate, institutional business practices. If necessary, change management experts should be brought in to help.

Leverage

There has been some payoff from each of these areas on most campuses. The CIO's challenge now is to leverage the institution's large investments in these areas to make sure that the payoff is appropriately huge. LF

Hot Issues: Making Headway...

continued from page 3

tional use, and increased online services provided by the institution itself.

Since even the expanded bandwidth is not limitless, most institutions are taking measures to "shape" it, employing both usage policies and traffic-managing software. This means network staff are spending more time on managing the bandwidth and on dealing with security, intrusions, and virus attacks.

Wireless

Turning point: *"We are beginning to experiment with wireless networking in small areas. We have no plans to abandon copper, but wireless may be a good way to supplement the current wiring plant."*

A few institutions have chosen to leapfrog over copper wiring systems that they could not afford to install earlier, or to use wireless methods to network neglected parts of the campus. But in general, our respondents are looking into wireless networking as a way to add another dimension to the existing network, not to replace it. Wireless creates real mobility, or at least that is the promise. So the emphasis in pilot projects today is on covering gathering places, high-intensity science labs, and other specialized areas. Libraries often provide a controlled environment for testing, allowing students to check out a wireless-equipped laptop for use in roaming the stacks.

Factors mentioned by our respondents that have heightened their interest in wireless include the increasing laptop population and the move by more manufacturers to provide wireless modems as standard equipment in those laptops.

The reverse factors slowing down plans for serious and widespread deployment of wireless systems include security and speed. Many of our subscribers are experimenting with small numbers of today's wireless modems and access points, but holding back any big investment until the next generation of standards and hardware settles down.

Investment, replacement, strategic planning

Turning point: *"As part of campus-wide strategic planning, our institution has come up with funding for the new technology that we plan to install over the next few years. Even more satisfying, we have managed to build a substantial amount of money into the annual budget to replace our equipment on a regular basis."*

> *Quite a few subscribers reported that they felt that the "hearts and minds" of the administration and key constituents had been won over recently.*

Quite a few subscribers reported that they felt that the "hearts and minds" of the administration and key constituents had been won over recently. Their campuses had not only found substantial funding for IT, but had come to the firm conclusion that IT was strategically significant for the success of the institution. They have decided that IT is linked to the institution's competitiveness in admissions, to its reputation, and to its ability to offer attractive programs. This view enables the budget makers to look at the IT budget as an investment more than an expense.

There was a lot of variation among our interviewees on this financial topic. Among both public and private institutions we heard about some severe cutbacks. But even in the cases where money was tight this year, several respondents felt that the stress was temporary and that the overall battle had been won for including IT among the serious budget needs.

Are we finally seeing the bottom of the "black hole"?

While on the subject of finances, we asked our sample of subscribers if they judged that the curve of replacement costs was still rising, flattening out, or even coming down. The consensus was that the gains in some areas (like cheaper and more powerful desktop systems) were offset by increasing expenses in others (more software, more peripherals, more laptops, more network bandwidth, expensive ERPs, expanded teaching facilities).

But there was also a sense that ways had been devised to get some costs under control. More standardization and better quality control in desktop systems had succeeded in reducing support costs for some, substantially reducing the Mean Time Between Failures. Techniques such as disk imaging over the network are helping some with lab maintenance costs.

The norm for desktop replacement seems to be settling at about three years. Many are approaching that goal gradually from a longer lifetime that relied on extensive upgrades and trickle-down. From the other end, a few who expected to have to replace some equipment (especially student laptops) in two years are beginning to entertain the possibility that they can extend that life to three years though the use of application servers for demanding or specialized applications.

No one felt that IT would be able to get along with less money in the future. But everyone felt that they were getting more for their money. Most people felt that a good portion of the basic needs had been addressed; facing hard decisions imposed by funding in the future will not be so wrenching as in the past.

Not at a turning point yet

There are some themes that are starting to appear in the planning of our subscribers, but are not widespread yet. We will be interested to see if these become prominent turning points next year. The following items were not high on the chart this time, but we think they may be rising and deserve to be marked with a bullet.

PDAs. Is the PDA just a gadget, or is it the platform for really integrating students into an electronic environment? All the subscribers who mentioned PDAs are at this moment just watching to see what happens. But they are clearly factoring it into their thinking. The PDA is the pure form of mobility – achieving what the laptop only offers with compromises. That is thanks to the wireless domains that are starting to become a reality. An always-connected wireless PDA is a much handier way to link to the kind of information that the institution has gone to such great pains to provide online. In connection with online learning systems, it offers yet another level of continuous interaction.

Hardening of the IT infrastructure. Since campuses are recognizing more and more the strategic importance of their IT infrastructure and facilities, they are beginning to think more about how to protect themselves from the consequences of an outage. While many campuses still point out that they do not have the same vital reliance on IT as a hospital or power plant, at least a few have taken serious steps. One campus has built entirely redundant facilities 400 meters apart to increase the chances that they can keep everything going.

Convergence of telecommunications and data. Some institutions are monitoring very closely innovations such as voice-over-IP. Whether campuses will be able to accept the consequences of this technology, both in quality of service and in the need for support and planning, remains to be seen. But it is a topic that is starting to pop up on people's radar.

New role for the CIO. We also heard some interesting developments in the role of the CIO, CTO, or de facto IT leader on campus. We plan to present what we learned about that topic in a later report.

Conclusions

To judge by the accounts of our subscribers, many institutions have made major strides in IT over the past year. What is more, the institutions have tied their success closely to this kind of progress. While IT still has to be cost-justified and still has to strive for its funding, its experimental flavor and its tentative hold on the attention of the upper administration have faded into the past. Is this larger commitment to IT changing institutions or simply helping them fulfill their essential purpose better? Perhaps a bit of both. Many of our respondents concluded that while their institutions were holding on to their basic principles, the changes were real enough. JS

> **"The Copyright Office, historically, has seen its mission as defending copyrights.... I am hoping that the Copyright Office over time will develop a greater mentality in support of user rights. "**
>
> U.S. Representative Rick Boucher
> "Logging in With..."
> *The Chronicle of Higher Education*
> September 11, 2001

Let us know...

Please contact us if you would like to reprint or re-publish an ***Edutech Report*** *article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Has the World Wide Web really contributed to a lot more plagiarism?

A. *The direct answer to that question is hard to know, in part because we have never really known how much plagiarism happened before the Web existed. It is reasonable to think that downloading or clipping text has to make appropriation of works written by others considerably easier than hand-copying or typing from printed sources. We can imagine that the temptation might be strong. But, basically, any paper written outside class poses some level of uncertainty about who wrote it or perhaps just helped to write it or coached the writer. As many articles over the past few months have noted, faculty should consider using search engines and specialized search services to try to track down written passages that they consider suspicious. Experts on the process of academic writing advise that if faculty can see stages of a paper in progress – perhaps an outline, a list of sources, or even just an early draft – they will be better acquainted with the students and papers before the assignment is completed. Seeing a major paper only once it is "finished" leaves room for questions about how it was written, technology and the Web aside.*

Q. When will we need to start supporting PDAs on campus?

A. *Your technical staff is probably already encountering support needs raised by PDAs, whether you intend to include those devices in the officially supported category or not. An example: something goes wrong with the software that integrates information from the PDA with a PC-based environment (like MS Outlook); the problem is reported as an Outlook problem, which it is once that software has been affected. Resolving that problem very likely involves working with the PC and the PDA. And, while PDAs seem in themselves less prone to software failures than PCs, as people begin downloading to PDAs more and more information, like e-books and articles, the consequences of any damage or loss grow rather quickly. In addition the convergence of more functions in miniature devices, like PDAs, raises the complexity of troubleshooting scenarios. The device that is not just a calendar and notes holder but also a telephone and Internet-capable instrument has to concern us regarding helpdesk support because several technologies are interconnected–and the PDA provides users almost no access to its internal processes.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

BEST COPY AVAILABLE

printed on recycled paper

THE EDUTECH REPORT

October 2001

Volume 17
Number 7

The Education Technology Newsletter for Faculty and Administrators

Network Trouble

Campus IT organizations have faced some distressing new challenges this fall with Internet service. These are just about impossible to discuss without suggesting comparisons to the September eleventh terrorist attacks and our actions in the aftermath. But while networked communications might someday be the target and even the mode for delivering a real-world attack, it is not our intention in this article to equate campus network issues with the gravity of war and peace. Yes, threats, security, diligence, precautions, and sensitive balances of control and access are the vocabulary we use in both matters, but the stakes, quite clearly, are not the same.

With the opening of this fall's semester, many campuses found their Internet access (the LAN-to-WAN) connections quickly flooded by unprecedented volumes of network traffic. At the same time, the severity of security attacks and virus invasions have worsened noticeably. Servers have been pummeled relentlessly; personal computers have been exposed to waves of Trojan horse and virus attacks that have been very time-consuming to repair where successful. While none of these problems is new, their persistence and aggressiveness seem to have increased; their consequences are even worse on those campuses still struggling to make the transition from flat, shared-access networks to structured ones and from reactive to active management of network traffic.

A new mix of Internet-oriented applications has also descended on us. The Napster application model and technical protocol has been joined by numerous others for distributed services and storage. Music and video-sharing are the uses for most of these; their content and operating characteristics combine to make them very

continued on page 3

"With continuing developments in information technology... the desire for academic freedom and for the open exchange of ideas and information is increasingly testing not only the operational reliability of the institutional electronic infrastructure but also the legal and ethical base of the institutional policy infrastructure."

Kent Wada and Paula King
"IT Policy: An Essential
Element of IT Infrastructure"
EDUCAUSE Review
May/June 2001

NEWSBRIEFS

A SEA OF DATA

Providing the immense storage capacity required by the combination of televisions, stereo equipment, household appliances, PDAs, and cell phones is the vision behind OceanStore, a project being developed by University of California-Berkeley's computer science department. Led by Professor John Kubiatowicz, a team comprising faculty, staff, and students is working to create a global networking system that would store data with more security and greater accessibility than currently possible.

OceanStore is a massive network of digital devices that is created by users linking machines together to form a community. Much like the Internet, OceanStore would have no centralized headquarters. Bits of data would be broken up, shared, and distributed throughout the network to OceanStore servers around the world.

From "A Sea of Data," in *University Business*, September 2001, Volume 4, Number 7.

GUIDELINES FOR RESEARCH IN CYBERSPACE

Proposed ethics guidelines for scholars who conduct research in cyberspace are set to be released today in a preliminary report from the Association of Internet Researchers. But the report also reveals disagreements over the lengths that researchers should go to in protecting the identities of online-research participants, especially those in public chat rooms.

The report says that ethical guidelines for using human subjects in other research contexts should serve as a starting point. It states, for example, that researchers have "primary obligations" to do no harm, to protect the anonymity and confidentiality of subjects, and to obtain informed consent. But the report's main goal is to highlight the specific challenges posed by working in cyberspace.

"Committee of Scholars Proposes Ethics Guidelines for Research in Cyberspace" *Chronicle of Higher Education* (chronicle.com/infotech), Thursday, October 11, 2001.

ACCESSIBILITY GUIDELINES

The World Wide Web Consortium's (W3C) User Agent Accessibility Guidelines, part of their Web Accessibility Initiative, address how to design user agents such as Web browsers that make the Web more accessible for people with disabilities. The guidelines focus on the accessibility of interfaces and internal facilities as well as communication with other technologies.

From *The Scout Report*, Copyright Internet Scout Project 1994-2001. http://scout.cs.wisc.edu/.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Network Trouble

continued from page 1

heavy hitters on the network. They are moderately sophisticated applications, using services at several of the OSI layers. Many operate dynamically, adjusting to use available bandwidth or to find alternatives to blocked ports. Even the business model of the provider companies poses new burdens for the network: by including imbedded applications that send back marketing-type data, they generate additional traffic automatically.

The increasing number and severity of security attacks against servers put many Web and mail servers out of commission during the past two months. The standard of management needed to resist these penetrations has become high, challenging the IT shop and all but overwhelming the more casual keepers of servers. The impact is spread all over campus because that is where growth in the number of servers has been. The same characteristics that have made server operation easier and more convenient for nonspecialists have provided opportunities for attack. And anyone not knowing or taking the trouble to review and close down unneeded services and access-friendly defaults is now just about certain to see trouble.

Users of personal computers have had a tough time as well. IP ports are routinely probed over the network automatically. New viruses and Trojan horses delivered in files attached to e-mail have swept over us almost every second week this semester. The cost of repairing the damage has increased also because these applets now tend to disrupt configuration settings and, in some cases, delete wide swaths on the hard disk. We are seeing wider and faster spread of viruses and more time-consuming work to recover from their effects.

A special challenge

These woes bring a special set of challenges for the education environment. We tend to be hyper-cautious about First-Amendment infringement in our IT policies. Accordingly, we are reluctant to impose new limitations on usage, given the difficulty in making a truly usable distinction between application types and information content.

> *As long as the network performed reasonably well, we were glad not to know too much about the content... to the extent that campus IT functions as an internet service provider to individuals, it was better off not seeing or caring what those individuals were using the service to do.*

Colleges and universities exist to encourage literacy, exploration, and experimentation – all of which are curtailed when we start taking actions against bandwidth, security, and electronic vandalism.

Of course, it does not help us that we have a history of lax management of campus network environments and activities. Multiple operating systems and applications are just the beginning of the complications we have allowed to proliferate. Inconsistent and incompatible network protocols co-exist – and not always in harmony. Revision levels of even the standard software tend to be haphazard. And any close examination of network traffic types reveals software we might not recognize and whose purposes and users we also do not know.

Until now, campus network managers have tried to consider most network traffic in terms of volume and throughput and to stay away from setting a hierarchy of approval, tolerance, and banning for network applications. As long as the network performed reasonably well, we were glad not to know too much about the content. Legal guidelines seemed to lend support to this approach; to the extent that campus IT functions as an internet service provider to individuals, it was better off not seeing or caring what those individuals were using the service to do.

The burden of regulation

Always sensitive to regulatory constraints originating off-campus, we now find ourselves in the uncomfortable position of finding we need to impose some of our own on network usage. Our experience of the Internet has been largely that of benign anarchy: something new all the time, change too rapid for rules, no controlling authority or mechanisms, and a seemingly trackless territory to wander. In contrast, local area networks have been much less "interesting," delivering mundane and closely managed resources.

Routers and switches had been the focus of our attention in network infrastructure – getting the data moved. Firewalls had been the primary means to close off the most obvious loopholes in network security. Network sniffers were used in

continued on page 6

At many higher education institutions today, there are people who are exercising CIO-like responsibilities without holding a "Chief Officer" title, enjoying senior-level rank or belonging to the president's cabinet. We found many such "default" CIOs in the sample of our subscribers we surveyed for the Hot Issues article this year (*The Edutech Report, September 2001*): "If there's a CIO here, I guess I'm it"; "I talk to the VPs in their offices, but I don't sit at the table when they meet."

When we identify an individual as a default CIO (DCIO), we don't just mean that the person occupies the niche that has traditionally been called something like "Director of Information Systems." As technology has become a mainstay of higher education, most institutions have ended up with a main IT group that supports services that must be consistent across campus, such as networking, campus administration software, central services like e-mail, and perhaps telecommunications. This central group often also supports desktops, classrooms, labs, servers, research machines, and other facilities for those units on the campus that don't have their own support groups.

Heading up such a centralized IT operation does not necessarily catapult a person into the category of default CIO. As long as the director is focused on making things work and providing services, as long as the director's role in the budget process emphasizes making a case for needs and requesting the funds to meet those needs, the head of IT is functioning as a department head. That remains true even if the director in question happens to be the highest ranking person on campus with exclusively IT matters in his or her job description. The expectations that the institution has for such key directors, however, can change dramatically over time, and these talented people often rise to another level, sometimes without even really noticing the qualitative change. *Voila*, the default CIO.

Defining the Default CIO

Whatever place the default CIO holds in the organizational structure, it is clear that the technology buck stops at his or her desk. The DCIO takes part in strategic planning, proposes an overall IT direction for the senior administration to adopt, is expected to give a heads-up before new technology surprises the institution, and plays a personal role in educating and winning over key constituencies, including the senior officers themselves. The DCIO is a key influence in encouraging the development of standards and policies that reach far beyond the DCIO's explicit domain in the org chart.

> *Whatever place the default CIO holds in the organizational structure, it is clear that the technology buck stops at his or her desk.*

However, the DCIO differs from a full-blown CIO in reporting relationship (reporting to one or even two senior officers, perhaps as associate vice president, executive director, or just plain director). Also, the DCIO sometimes has a somewhat limited span of control, which may not include one or more of the elements like the library, audio/visual, learning labs, telecommunications, or divisional facilities. Most significantly, the DCIO does not have a regular seat at the senior-level council. This last item, the DCIO's arm's-length involvement in senior deliberations, is perhaps the most defining quality of this twilight position.

Is this just a compromise an institution makes on the way toward creating a full-blown CIO position? Are there advantages to doing it this way? Does this model fit some institutions more than others? Let's review some of the thinking that often goes into the decision about whether an institution should create a senior level information technology position.

When deciding whether it needs a real CIO (or a reasonable approximation), an institution must ask whether IT has come to have strategic (life-or-death, flourish-or-famish) importance for it. If not, then the IT needs are probably being handled by one or more functional departments that are seen as part of the infrastructure. The heads of these departments are probably too busy to be doing much duty at the institutional level, even as default CIO.

But let's say that the institution has recognized a central role for IT in its vital activities and therefore decides that it needs a single person to carry that portfolio in a systematic and responsible way. The institution may want to bring serious technology expertise into the top-level planning process, but may still shy away from formally putting that person on the top line of the org chart. What follows are some common reasons why an institution might not want to create a senior-level position for IT, but instead might choose to locate the responsibility in a single place – just one level down.

Span of control

Some of the first experiments with the CIO concept were based on the idea of unifying all the aspects of the institution that are based on information technology. A notable example was the idea of bringing the Library and the traditional IT organization together under one roof, at least figuratively. Some of these mixed families worked well, others did not. Some institutions have backed away from creating a senior-level CIO position because they know they do not want *that kind* of CIO, they do not want to try to pull together disparate units into one organization.

However, the core idea of the CIO concept can be separated from the concept of a unified span of control. Over time, the CIO concept has migrated away from authority (the trademark of the "computer czar"), and moving toward leadership and influence. Although certain kinds of real authority are important for the CIO, a reporting relationship with all the units that provide or consume IT services is not one of them. In fact, the more we understand how IT is intertwined within all the essential efforts of the institution, the more futile it seems anyway to try to separate out the units that are technology-intensive and bring them under one office.

What do senior administrators do?

Another facet of the span of control issue has to do with defining what kind of responsibility justifies a senior-level position. Some institutions hesitate to elevate the Director of IT to the position of a senior administrator because the size of the IT budget and the number of IT staff, even though they may be large, do not seem to constitute a big enough responsibility for, say, a vice president.

But people are often included in the president's cabinet for reasons other than the size of the unit they head. For instance, the person responsible for enrollment management or for public relations may form a permanent part of senior-level discussions because of the abiding importance of their area of expertise, not the number of people they supervise or the size of their budgets.

> *If the top IT person reports to the president, that eliminates some of the perception that IT is dominated by one or another faction on campus.*

Watering down the soup

Sometimes there is a reluctance on the part of the existing senior administrators to add a CIO position out of fear that it may dilute their own influence, or reduce their share of a zero-sum pie of resources.

This situation is as close to pure academic politics as you can get, and will take a skillful president to handle. The president can make it clear that the CIO will be expected to bring an institution-wide perspective to the senior administration's deliberations, not simply to plead for his or her own projects, and remind everyone that it is in their own interest to have a sound IT policy undergird everything the institution does.

Call a CIO when you need one

Many of the issues that the top administrators need to work out among themselves do not directly involve IT. For instance, financial aid strategies, faculty salaries, or major curricular decisions don't seem to call for a "techie." Why not just put the IT honcho at a subordinate level and invite him or her to the meetings as required? This thinking is flawed because, for one thing, it often turns out that most big issues have a strong IT component hidden in them somewhere.

But to look at it from the other direction, it is just as important to educate the IT leader in the ins and outs of the institution's priority dilemmas. The IT leader has to be at the table and on the retreats for the benefit of his or her own education (and continual reeducation) about the institution's plans, goals, challenges, and capabilities to ensure strong IT support.

If an institution thinks it needs the functions of a CIO, there are also structural benefits that come from making it a formal position at a senior-level. Such a decision stresses the importance that IT has for the institution. And if the top IT person reports to the president, that eliminates some of the perception that IT is dominated by one or another faction on campus.

The placement of the IT leader can also be important for plugging the IT staff into the institution; otherwise they may feel that their main problem is not being able to get their message "to the top." JS

Network Trouble

continued from page 3

small networks mostly in response to emergencies. Only larger networks were likely to have sufficient staffing to use them pro-actively, but even then the use was generally not routine or systematic.

Managing bandwidth

Bandwidth shapers have emerged as this year's new necessity. With these we cross the threshold into a closer degree of scrutiny of network traffic components, user practices, and application types; and what we learn from them leads us to new kinds of policy. With finite bandwidth and dynamically expanding applications in the traffic mix, we face an uncomfortable dilemma: we cannot hope to add bandwidth to keep ahead of demand, and we have a history of reluctance to rule some applications more worthy than others. Preliminary implementations of preferential treatment for networked applications are currently underway on many campuses. Some applications are being blocked, others are guaranteed bandwidth, and still others are relegated to competing for whatever is left.

This rationing of network resources is consistent with many other campus resources. Library book loans (including interlibrary) are subject to limitations. Faculty time outside class, too, is not unlimited – though we generally leave it to faculty to set their own bounds. In principle, we should be able to talk about and administer network accessibility as a resource for which we do not have an infinite supply.

Our institutions have bought their way out of situations of shortage in the past. In the timesharing days, disk space and connect time were scarce resources. Cost and technology trends saved us before we had to make hard decisions about rationing. When personal computers first appeared, we sometimes had rules requiring that word processing take a lower priority than work involving actual calculation of numbers. Those days, too, are now just a quaint memory. Perhaps in a few years we will be able to buy enough bandwidth so that we can again not need to look too hard at how it is being used. For now, that possibility is just a hope; we need to solve today's problems by a deeper foray into policy than feels comfortable.

With finite bandwidth and dynamically expanding applications in the traffic mix, we face an uncomfortable dilemma: we cannot hope to add bandwidth to keep ahead of demand, and we have a history of reluctance to rule some applications more worthy than others.

Talking with students

Students, so far, have reacted moderately to this new regulation, finding restrictions preferable to the near-lockout caused by the bandwidth bottleneck and fearing the consequences of being unable to access network-based information needed for their course work. Still, they are uncertain about what standards to expect of campus IT in its role as internet service provider.

Before coming to campus, their experience with ISPs was that of individual customers to a mass service. They are not always sure what is different about being part of a community with shared (and competing) access to total bandwidth much smaller than would be the sum of their individual subscriptions to a commercial ISP. Managing those expectations is among the new challenges facing IT organizations, as well as their advisory committees and the senior administration.

Existing in the WAN space

Every brick-and-mortar campus already has dimensions that extend into the wide area network (WAN) space. Instructional resources on the Internet have become common for most courses. Adjunct faculty are not on campus all day, and they need to connect back to campus servers from elsewhere in the normal course of their work. Libraries have been shifting from on-the-shelf periodicals and indexes to on-the-net subscriptions reachable only by network. And so, even before we come to distance education, there are many "traditional" aspects of academic work that already make wide area network access essential, and not just an addition at the margin.

Precisely because nobody owns or controls the Internet, it has grown to its current size and strength without waiting for us to decide a reasoned relationship of costs and benefits. The unstoppable force of the Internet (and specifically the Web) is running into the almost unmovable object of institutional resource limitations. Colleges and universities have seen the era of finite networks that began with Arpanet and Bitnet evolve to something that seems almost infinite. The WAN begins to look as big as all the universe. While we have been busy building campus infrastructure in the past decades, the information

BEST COPY AVAILABLE

landscape outside campus confines grew to a size we are now hard-pressed to deliver on-campus.

The end of the beginning

It seems the Internet may be reaching a level of chaos that is beginning to undermine its value. Internet 1 is straining our capacity to support it before Internet 2 produces the successor. The environment where services and users collide and compete for resources is degrading rapidly in terms of accessibility and reliability. Teachers find that sources they want to tap via the network from a classroom can be unavailable due to traffic volume or because the URL has changed since they bookmarked it.

Quality of service, persistence of URLs, and security that is much better imbedded in basic network technology are all overdue. Most of these improvements are under development, but will they arrive in time to alleviate the problems of Internet 1 before it becomes too unreliable for instructional purposes? Routers, firewalls, bandwidth shapers, and anti-virus software are the tools we are using to fight back against the growing chaos out on the Internet, but they are not enough.

If we step back to gain some perspective, we can remember that the Internet is something of an illusion. The network of networks is not all-inclusive. Neither does it provide open access to all. By far, most of the information on networks is not accessible under normal circumstances. Extensive networks in commercial and military realms hardly intersect with it at all.

In these exceptions to the interconnectedness we habitually associate with "Internet," we can see fallbacks to which we ourselves might soon resort – closed networks, limited access to premium services, blocking and filtering of applications and content – in all, a more compartmentalized and regulated approach to networked information. While the single, universal network could become an obsolete model, the technology, cost, and policy aspects of whatever succeeds it might become considerable burdens in the future.

Prospects

In the short term, chaos and dismay are bound to be with us as we struggle to make more use of networked information in academic work. Long-overdue discussions of the purposes and costs of Internet bandwidth will have to take place. And we will have to grapple with usage policies (and their technical implementations) just to preserve the quality of service that we saw before the decline we are experiencing now.

In the mid-range forecast, we can predict higher telecommunications costs as we try to buy some margin in capacity to accommodate growth even while we set limits in place on usage. Part of the new cost is likely to be multiple outlets from the campus to key services that are off-site or to allow academic and administrative units to open their own incoming channels for their off-campus correspondents.

The longer term, if the past in IT is any guide, will likely see us move beyond what seems such trouble now. Bandwidth will become cheap and available, and software design will do a better job with security. TW

> **"Most people in higher education prefer to rely on expert evaluation when thinking about quality assurance. They believe that students cannot make judgments about what constitutes high-quality education because they have not been trained to develop adequate criteria. . . when we make those judgments, we do it according to our rules, not according to what students may need or want."**

Carol A. Twigg
"Quality.com"
The Learning MarketSpace
March 1, 2001

Let us know...

Please contact us if you would like to reprint or re-publish an ***Edutech Report*** *article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. As CIO, I sometimes find it difficult to get staff members (and even directors) going on work that clearly has a high priority. Do you have any suggestions?

A. *If the urgency of the tasks in question has been made clear and there are no questions coming back to you about what is expected, then the problem might be something more subtle than insufficient communication or misunderstanding. Do the staff in question have adequate experience to carry out what you are asking? Inaction could result from a lack of self-confidence or from fear of making a mistake. Has the new work been added without guidance on what other tasks have to be curtailed? Not everything can have top priority. Sometimes coverage of routine work seems the most urgent, just because it is what people spend most of their time doing. Do staff lack necessary background information? Knowing where to begin can be hard. All of these possibilities can be made worse if your reaction is frustration and impatience. A better course is to roll up your sleeves and get involved directly, at least for a while. Leading by example – joining in the work, learning along with staff, and modeling the actions you expect of them can bring some welcome energy and motivation. The caution and steady pace that serve well in normal work can become obstacles when the challenge shifts to starting something different.*

Q. We are often criticized for not communicating adequately when we are trying to resolve some crisis. But that is exactly when we are really busy and do not have the time to call people to explain what we are doing. What can we do about that frustrating situation?

A. *There are a variety of ways to ensure good communication without detracting from solving an urgent problem. Having communication planned in advance – knowing who needs to be contacted, what they need to know, and who will do it – is very useful. Enlist help from other departments. For example, if a network outage is the problem, ask helpdesk or other IT staff to make the phone calls. Student Affairs staff can help by passing your message through their communication channels. The campus public relations office is probably best situated to get a message to the whole campus community in the case of an emergency. In all events, you need to having some advance arrangements ready with help a great deal.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE

November 2001

Volume 17
Number 8

EDUTECH
REPORT

The Education Technology Newsletter for Faculty and Administrators

Does the Medium Matter?

Although we have nearly forgotten Marshall McLuhan, our work in understanding emerging media of communication has only just begun. His assertion that "the medium is the message" is a debater's point meant to challenge our usual, facile distinction between form and content. The gist of his argument is that we typically ignore how the medium (which we can also call "technology") can carry a message – and how that message is not necessarily the same as the one we think is being communicated. Information technology is spawning new media all the time, certainly at a rate faster than we can absorb and evaluate.

Plato said that the invention of writing (a new medium) would lead people away from using their memory to retain knowledge. Gutenberg's mechanically printed pages were seen by some as a threat to the warrant of authenticity that hand-copying provided. Visual media have been accused of breaking down the discipline of linear thinking, which we tend to associate with text. Each of these critiques reveals the significance we associated with the medium. For the ancients, memory was integral to human genius, and writing threatened to reduce its importance. For sixteenth-century Europeans, the authenticity of knowledge was guaranteed by the hand-copying of manuscripts, the true connection to original sources. In our time, the book still dominates as the most valued package of knowledge, the physical representation of mental discipline, thoughtful organization, and diligent labor. Throughout our cultural history, changes of medium have been accompanied by doubts and fears about how they appear to overturn the values embodied by whatever seemed in danger of being superseded. We can say that almost as a matter of course, new technologies have the potential to provoke cultural disturbances and recriminations.

continued on page 3

> **"While the modern world often appears increasingly impersonal, in those areas where knowledge really counts, people count more than ever. In this way, a true knowledge economy should distinguish itself not only from the industrial economy but also from an information economy. For though its champions like to present these two as distinct, the information economy, like the industrial economy, shows a marked indifference to people."**
>
> John Seely Brown and
> Paul Duguid
> *The Social Life of Information*
> 2000

BEST COPY AVAILABLE

NEWSBRIEFS

THE INTERNET WAYBACK MACHINE

The Internet Archive, a comprehensive library of Internet sites and other cultural artifacts in digital form is a free service allowing people to access and use archived versions of past Web pages. For the first time, members of the public will be able to search and view the Internet Archive's collection of Websites, dating back to 1996 and comprising over ten billion pages.

The service is hosted at the University of California's Bancroft Library. To use the Wayback Machine, visitors simply type in a URL in the provided search box, select a date, and then begin surfing on an archived version of the Web. The service is intended to meet the need to see Web pages that are otherwise no longer currently available on the Web or that have been superseded by different pages.

See www.archive.org.

ONLINE COMMUNITIES

A new report from the Pew Center focuses on the role of the Internet in creating virtual communities or supplementing local communities. The 28-page text is divided into several sections, beginning with a summary of key findings. Pew surveyed almost 1,700 Internet users and found that online communities are varied and vibrant and that the Internet, rather increasing estrangement or alienation in its users, facilitates local, face-to-face communities. The report is both readable and studded with tables and references and should be interesting for those researching virtual communities and the role of technology in culture and for Internet users who ponder the role the net has in others' lives. Users can download the report as a .pdf file or browse it online.

See: www.pewinternet.org/reports/toc.asp?Report=47. From *The Scout Report*, Copyright Internet Scout Project 1994-2001. See: scout.cs.wisc.edu.

SPEECH TECHNOLOGIES: AN UPDATE

Over the past ten years, technologies that incorporate human speech have become commonplace in many aspects of daily life. These speech technologies now permeate telecommunications, call centers, the Internet, e-commerce financial systems, scientific research, medical settings, portable devices, personal computers and military equipment. Speech technologies are also part of a growing trend in educational software that incorporates interactive learning through creative use of human and computer voices. Although reliability and sophistication varies in commercial and educational speech applications, many analysts feel that today's speech technologies are laying firm groundwork for the ultimate goal of totally natural human/computer speech interaction.

Tressa Steffen Gipe, *TechKnowLogia*, November/December 2001.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). **Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden.** **ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.**

BEST COPY AVAILABLE

Does the Medium Matter?

continued from page 1

Old media

Chalk connotes improvised writing intended only to last as long as a class session. Chalk-writing tends to be notational rather than discursive. The writing on the blackboard is never identical to the notes the students make or even that the instructor makes the next time that day in the syllabus comes around again. We associate chalk with the private and temporary writing that is shared in a classroom and only intended for those present. If left on the blackboard it is often undecipherable to the next group meeting in that room. Interestingly though, some of our oldest human notations (such as the cave drawings at Lascaux) are done in media to which our classroom chalk is probably the most direct descendant.

Pencil-writing is another form of private communication, often in the form of notes to oneself. We use a pencil when we want to feel free to correct and revise. We use it to write notes on already-written or printed pages. And we probably use many fewer pencils now because we go directly to the keyboard when writing and revising texts.

As for ink, its highest use is for signatures, where it has the advantage of permanence over the pencil. Ink is, or was, also the medium for letter-writing – the most significant form of writing done by most people.

That these media all continue in the present day tells us that the emergence of new media does not inevitably destroy those they might seem to replace. Actually, it is rather quaint that "personal digital assistants" should use the stylus as a writing tool: digital electronics with a data-entry mode resembling the pointed stick used to inscribe wax or clay tablets, in mimicry of the oldest media. A history of media is less about succession and obsolescence than it is the contexts and values they represent for us. Rules and conditions that we rarely bother to codify come with each of them.

Newer media

The telephone, which Edison imagined would be a broadcast medium, has instead turned out to be an extension of conversation to bridge distances. When telephones were still scarce they were reserved for extraordinary communications. Now that cell phones are ubiquitous, many of the conversations they carry are mundane and incidental – private small-talk carried on in public. The telephone, of course, has its own "rules" of usage and etiquette that have evolved over the one hundred years of its existence. With regard to older media, the phone has probably had the biggest role in reducing the use of ink – by replacing letter-writing.

> *A history of media is less about succession and obsolescence than it is the contexts and values they represent for us. Rules and conditions that we rarely bother to codify come with each of them.*

But the telephone has also been an interesting harbinger of the now rapid succession of communications media that we have come to know. In the late twentieth century, the transport technology of the phone became the basis of facsimile technology. And when coupled with the magnetic tape recorder it set the foundation for "voicemail" – a sort of reunion, at least in metaphor, of the telephone and the written letter.

Photographic film and magnetic-tape film are "modern" media whose technological life spans have been relatively short and disappointing. Photographic emulsions and substrate media break down much faster than pencil or ink on paper. Magnetic recording is vulnerable to inadvertent corruption and to the fragility of the underlying tape. Their "successors" bear a superficial resemblance to the originals and give an illusion of technological continuity. Pixels and ink dots now give an appearance almost indistinguishable from the grain textures of silver halide crystals. Interestingly, before pixel density increased to current levels, chemical-based photography seemed the standard for picture quality, despite the fact that degrees of graininess have always been part of our experience of photographs. Once pixels got as small and tightly packed as silver halide, art history faculty came to realize that digital images were not inherently inferior to traditional slides.

Motion-picture film and magnetic video have had a relationship and evolution like that of photos and digital images: film meant quality and video meant convenience – or low budget. Only once technology closed the image-quality gap did the privileged status of film start to erode.

An even more elusive transformation happened with newspapers. The replacement of linotype machines with printers working from electronic images of the pages did little to

continued on page 6

"Making the switch from WordPerfect to Word has been very difficult and time-consuming. I've built macros, learned keyboard shortcuts, and developed a lot of expertise in WordPerfect over the years. How can you take that all away from me? And how can you possibly refer to this decision as a 'no-brainer'?" • "I had to spend half of my class this morning trying to deal with the projection setup and Internet connections in the classroom I was using. Besides looking foolish in front of my students, I lost valuable class time that I can never get back. How can you possibly not provide real-time assistance in dealing with this kind of problem?" • "Your people installed the new software on my machine yesterday, but they also must have changed something else at the same time and now I can't get to one of my important files. How can you possibly have just voicemail at the Helpdesk at a time like this?" • "We extended online registration to run over the weekend, but then the network went down and we left hundreds of students unable to register. I couldn't reach anyone in your department for help. How can you possibly not have network coverage during critical times?"

Sound familiar? There's nary a CIO in a college or university today who hasn't heard these comments, or others very much like them. And a good CIO, of course, will certainly want to do something about the situations depicted by these comments. But there is more to it than that – it's not just a matter of "fixing" things; it's also a matter of clearly displaying your ability to see and experience the world from someone else's point of view, in other words, your empathy. Being an empathetic CIO means walking in the shoes of your users and understanding – at a profound level – what the world of technology looks like to them.

Why is your empathy important? Because it tells the people you serve two important things: first, that you share their sense of urgency about the problem they are having and second, that you can do more than just react and respond to individual situations. Being motivated to fix something is good, actually fixing it is even better, but it is empathy that ensures that you will do everything you can to see to it that the problem does not occur again.

> *There is no question that it is much easier to make allies out of your unhappy users when you display empathy. And no one needs campus allies as much as a CIO, especially when it comes time to ask for more resources. The IT department rarely, if ever, wins big resource battles all by itself.*

Empathy should not be confused with sympathy, especially in a leadership position. This is how Stephen Covey (most well-known for his *7 Habits of Highly Effective People*) explains it in *Principle-Centered Leadership*: "Giving full attention, being completely present, striving to transcend one's autobiography, and seeking to see things from another's point of view takes courage, patience, and inner sources of security. It means being open to new learning and to change. It means moving into the minds and hearts of others to see the world as they see it. It does not mean that you feel as they feel. That is sympathy. Rather, it means that you understand how they feel based on how they see the world. That is empathy."

The real world of users

Let's look at the comments we started with. In each case, the unhappy user is sending two distinct messages: the first is *care about my problem* and the second is *fix my problem.* As any of us can attest who has ever been faced with something like a seemingly interminable delay in an airline flight, the first message is every bit as important as the second. And in fact, even if the problem itself does get fixed, we are very often left with a sour aftertaste if we feel that the first message was not heard and accommodated. In other words, Mr. Gate Agent, act as if this problem really matters and that you understand how this may be affecting my life. I know that you personally may not be able to do anything about it, but please don't be sitting there giggling with the other gate agents, chatting happily about what you're going to have for dinner when you get home – no doubt much sooner than me!

There is no question that it is much easier to make allies out of your unhappy users when you display empathy. And no one needs campus allies as much as a CIO, especially when it comes time to ask for more resources. Many of the comments in the first paragraph can be traced to resource issues, and it may very well be that increasing funding levels will be the only permanent way to solve them. But the IT department rarely, if ever, wins big resource battles all by itself. Yes, you can cry and scream and rant and rave – you can even make a solid, rational case with lots of good documentation – that the users are demanding 24/7 network and Helpdesk coverage and that you need more staff to do this. But if the budget committee is also hearing – from those very same users – that they need more faculty members in their department to keep up with student demand for certain classes or additional development officers to reach the ambitious fund-raising goals that the institution established for next year, what are the chances that the request for more IT staff will be the one that is granted? They are not zero, certainly, but neither are they so high as to be a sure bet.

And here is where allies come in – if it is not just the CIO who is requesting more IT staff to provide 24/7 coverage, but a broad base in the community is requesting it as well, then the chances of this actually happening are so much greater. An acknowledgment that you see how serious an IT problem is for someone, how difficult it may be making their situation, how non-trivial an aspect it has become for them (no matter how trivial it appears to you), and expressing that acknowledgment in the right way, can have a very large payoff.

The real world of the IT staff

The other important opportunity to display empathy is in working with the IT staff. Generating and maintaining the respect and loyalty of the people who work in IT (almost all of them with many opportunities to work elsewhere), is no small feat. It takes a lot of skill, courage, integrity, and perseverance – and it also takes empathy.

A good IT leader will know how to respond when one of the IT staff members has problems, whether they be personal or job-related, by letting that person know he or she is not alone and that someone else can see the world in the same way. That is not to say that you give up the traditional management and supervisory tasks of performance reviews and constructive criticism; having empathy for someone doesn't have to mean that you approve of everything they do. But it does establish a base of communications that can be used to create an environment is which every staff member has an opportunity to work up to his or her full potential. Just as with users, displaying empathy is likely to help you acquire allies among the staff, people who will help promote your vision and work with you to carry it out.

> *An acknowledgment that you see how serious an IT problem is for someone, how difficult it may be making their situation, how non-trivial an aspect it has become for them (no matter how trivial it appears to you), and expressing that acknowledgment in the right way, can have a very large payoff.*

It is a special challenge for those CIOs who do not come from an IT background to be able to convey the message to technical staff that they get what's going on. This is not about understanding the technology *per se*, but in successfully communicating an understanding of how tough the job is, how much pressure there is, how much skill it takes to do it right, and so on. Needless to say, this all has to be genuine. Lots of people can spot a phony, but IT folks are especially good at it.

The CIO also serves as a role model for the rest of the staff in relation to the users. Providing services to the community is full of opportunities to display empathy – and to win over still more allies.

The real world of all of us

Attitude means a lot. In some cases, it means everything. The world is a different place now than it was before September eleventh, in more ways than can be counted here. But one thing this terrible tragedy has shown us is the value and the power of empathy. No matter where we live in the U.S., on 9/11 we saw the world through the eyes of those in New York and Washington. People all over the world saw the attacks through the eyes of this country. And Rudy Guiliani became a legend in his own time, in large measure because of his capacity to empathize with those who went through so much. Sympathy and other emotional responses were important in all of this too, but it was – and is – empathy that has impelled so many of us to join together so dramatically and forcefully in a world-wide coalition to root out and eliminate terrorism.

Dealing with difficult situations is a CIO's job. Bringing empathy to that task will contribute greatly to the CIO's leadership. LF

Does the Medium Matter?

continued from page 3

change the newspaper medium in ways the reading public was able to see. Instead, the transforming contribution of digitization has been in the ability to transmit the printing image to distant print factories, meaning that *The New York Times* can be printed on the west coast at the same time as in New York City and out on the streets at the same time, too.

The newest media

The word-processed document is a medium distinct from the typewriter-produced item, and for reasons that have little to do with appearance. It is the process of composition that distinguishes them. This was not always so; at first, many of us hand-wrote our papers and then used a word processor as a fancy (expensive) typewriter. The issue we should consider is whether we have understood and exploited the implications word processing might have for improving our writing.

Only gradually have we begun to incorporate re-writing into our expectation of student papers. And only a few writers have explored the creative possibilities inherent in text in electronic form. Higher education's return on its massive investment in personal computers (which are used mostly for writing) is appallingly thin so far. We might yet redeem that expenditure, but not until we understand what is unique about texts in electronic, online form and change our expectations accordingly.

We have also been slow to appreciate the more profound implications of digital documents and images. While our attention has mostly focused on issues of quality of appearance and ease of manipulation, we have only lately begun to consider how hollow the term "copy" is with regard to digital information. Copy technologies of longer standing have typically had intrinsic losses of resolution between original and copy.

With digital formats, there is literally no difference between them. As a consequence, we find it necessary to embed invisible watermarks or look to other incidental means to establish the provenance of these documents. The actual concern of course is less with authenticity (or accuracy of the copy) than with establishing commercial or intellectual ownership.

> *Higher education's return on its massive investment in personal computers is appallingly thin. We might yet redeem that expenditure, but not until we understand what is unique about texts in electronic, online form and change our expectations accordingly.*

Streaming media (audio and visual) are also an interesting case of unintended but useful consequences. The technological impetus behind streaming was originally to segment otherwise huge files so that they could be transmitted in small pieces – in deference to Internet bandwidth limitations. But the technology also turns out to be a good way to make illicit copying much more difficult: each segment of the transmitted file is discarded once it has been played and the next has arrived. The receiver normally has nothing left once the whole file has played. If bandwidth improves to the point that sound and video files can be transmitted whole, will streaming still continue, and if so to what purpose? What now seems a welcome expedient and convenience – usable files that otherwise would be impractical to transmit – could eventually seem a draconian way to protect copyright.

Digital animation and editing have made serious inroads in our ability to distinguish "real" from "artificial" images. We can no longer assume, for example, that photographs are authentic. Once digitized, these images can be altered in ways we are not able to detect with the eye. Manipulations of this sort can be valuable (as in the case of computer-based simulations) or deceitful (in the case of forgeries). The difference between real and not-real is becoming more than an amusing trick.

New worlds

Online life is spreading from students' recreational computing into the mainstream of instruction. The prevalence of course management environments that package e-mail, Web pages, threaded and live discussions will undoubtedly lead us to discover meanings we don't expect or intend when we set out to use them. We have already learned that the relative anonymity of communicating via networks can bring advantages for shy students. We know also that this environment can foster more individualized instruction than is possible in a traditional classroom. But we are also discovering that "anytime, anywhere" education via the network also has a high drop-out rate. It seems that some of the same factors that make attending classes difficult (working full-time, or having excessive, competing calls on one's time) take a toll among distance learners.

Another online environment or medium that needs some study is the database. Why these have not had more impact on teaching and learning is difficult to understand, especially given their profound effects on many aspects of our lives and work. Why don't we teach students to keep a personalized, cumulative, annotated bibliography throughout their college career? Experiments with this idea were tried more than ten years ago but seem not to have led to general practice. In many academic disciplines the storage and retrieval of facts could benefit from this technology, or so it seems. Yet databases seem to be an environment, medium, or technology that few students learn to use. The medium seems alien and not intuitively useful, despite its ubiquity outside the world of education.

Smart chips, storing information in a form that is highly portable and usable as one travels around has also been slow to catch on. They could conceivably enable students to collect and exchange data automatically from disparate sources: information kiosks, lab equipment, banking machines, but they have not come into widespread use. With the current miniaturization of mass storage, the potential amount information an individual could carry around is simply staggering – a veritable library on a small card.

What don't we understand? — In the world of education, technology and "content" have at best an uneasy relationship. We have tended to think that technology should assist us in reaching goals that are longstanding and taken for granted. We are also still inclined to think that technology's origins are somehow alien and inherently antithetical to the values that guide education. And perhaps we are still uncomfortable with the pace of change we would see if we were more receptive to new technologies earlier. There seems to be a hidden message in the communications media created by modern, electronic technologies – and whatever it is seems not to appeal to us.

In sum, we have unfinished business even with some of our long-established media. The reasons for sticking to the old media seem visceral and deep-seated: fear of losing control in the classroom, reluctance to invest time and work before feeling certain of the outcomes, and just a stubborn disinclination to expose ourselves to change and risk.

Still ahead, in our endless reconsideration of the curriculum, we will need to make technology a subject of study in itself: how is it affecting our thinking, working, and living? Are we immobilized because these media have implications we find hostile? Is our sense of how to educate so out of synch with the media we have already at hand? TW

"As Chaucer's 'old bookes' give way to the Information Age, I've been asking myself whether or not these books – and today, principally journals – have morphed into something else entirely. Scientific communication is increasingly driven by factors that have little to do with researchers and more to do with commercial publishers' profits. Even amid talk of the Internet-driven rise of scientific publishing, the researcher and the lab – where scientific communication originates – seem to be forgotten entirely."

Alison Buckholtz
"Returning Scientific Publishing to Scientists"
The Journal of Electronic Publishing
August, 2001 Volume 7, Issue 1

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. **We see more and more now about project management as a discipline in itself. How widespread is it in campus IT and is it really necessary for us to come up to speed with it?**

A. *It is true that more IT shops are taking a more formal approach to project management. Well-established in the commercial world, project management methods have been slow to catch on in academe. For that matter, tools, terminologies, and practices quite standard in the business and government spheres have come late and slowly to our world. The essentials for project management center on understanding the core triad of money, time, and specifications for a project and planning accordingly. For example, if the budget and specs for a project are fixed and cannot be adjusted once under way, it stands to reason that time to completion will become the dependent variable. If there is no possibility of adding staff when unexpected slowdowns occur, then stringing the project out over a longer period becomes almost inevitable. Training in project management is commonly available through IT training sources. There are also software packages that will step you through the standard steps and processes.*

Q. **Why are PowerPoint presentations so boringly alike and tedious? Is that just the nature of this tool, or is the problem the fault of the presenters?**

A. *PowerPoint is one of those programs (like Excel) that is easy to begin using but requires some additional investment of time and creativity to use to its full effect. One of the problems with the stereotypical PowerPoint presentation is that people tend to use it simply to construct an outline of the presentation. The software invites this tendency by providing a rather good "wizard" that features several attractive page templates that produce the bulleted formats we always seem to see. One way to get a better result is to choose a few brief quotes from your talk or short summaries in full text. When you give your talk, display the relevant slide but use it only as a support, and not the script or outline for what you are saying. A more ambitious approach is to dig into PowerPoint's nice ability to import still images, video, sound, and just about any other computer-based information display. You can then use the arrows and other highlighting and mark-up graphics that are also in the program to annotate your imports and create a really outstanding presentation.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE
December 2001
Volume 17
Number 9

EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Technology in the Library

A look at the campus library is an interesting way to see how it is that "Information" Technology really consists of a kaleidoscope of technologies, each evolving for different reasons and at its own rate. Some of them are moving towards a convergence, that is, sharing underlying components and joining in a common control interface, but most of the evolution is opportunistic and not systematic. It is all too easy to think of IT as a single thing, a common core of technology applied in various ways to meet dissimilar needs. But the picture that emerges when we survey the multiple technologies in a limited scope is distinctly different – tools and methods we keep working to fit into a coherent set that we think useful.

While libraries have not been very technologically intensive until fairly recently, they have always been rich in processes, classification schemes, and rules. Their inner workings were highly systematized before automation was possible. Once the machine readable catalog (MARC) became a reality the movement towards the adoption of electronic technologies in general gained momentum. The catalog of holdings is the second most valuable physical asset of any library (after the books), which makes it the critical resource to try to improve through information technology. The rapidity of progress in transforming card catalogs into effective data environments was no doubt aided by the extent to which the organization of the physical catalog was already highly systematic and refined.

Before computers had a major presence in libraries, microfilm was the major form of technologically transformed information in those facilities. Next came specialized microcomputers and communica-

continued on page 3

"It would be a mistake ... to conclude that the dot-com meltdown marks the end of online education. Fundamental and irreversible change has occurred; we are in the midst of an extraordinary transition that will affect every aspect of higher education. While such developments can be described in many ways, they might best be understood as the emergence of a new network culture."

Mark C. Taylor
"Unplanned Obsolescence
and the New Network
Culture."
Chronicle of Higher Education
December 14, 2001

NEWSBRIEFS

GREAT MINDS ...

Nobel laureates are a tech-savvy bunch. That's what a recent survey of 71 winners of the prestigious prizes has found. The survey, conducted by Princeton Survey Research Associates and sponsored by Cisco Systems, questioned Nobel Prize-winners about the impact of the Internet on their lives and on the world now and in the future. For the most part, the respondents, whose median age was 72, praised information technology. Ninety-five percent, for example, said the Internet helps scholars share their ideas with colleagues. The survey also revealed that Nobel laureates do their share of Web surfing. Eighty-nine percent reported using the Internet at least a "moderate amount." Majorities of survey participants also said the Internet: has had a significant impact on their colleagues (98 percent); will increase the speed of innovation (82 percent); breaks down borders between cultures (76 percent); has a positive effect on education (87 percent); and provides economic opportunities to less-developed countries (72 percent). The respondents also are concerned about online privacy (65 percent) and worry that the Internet will lead to a greater sense of alienation (51 percent).

Thomas Bartlett, "Of the Internet, Great Minds Think the Same." *Chronicle of Higher Education*, December 14, 2001.

DEVICES OF WONDER

An online exhibit at the Getty Museum showcases media devices from the past and present. Included are inventions that present visual information or optical illusions, such as Indonesian shadow puppets, magic lantern slides, pop-up books, thaumatropes, and anamorphic images. Both animated and non-animated versions are available. In the animated version, users can see each device in action, but it takes a little longer to simply get each device's name and information about how it works.

From *The Scout Report*, Copyright Internet Scout Project 1994-2001.
See: scout.cs.wisc.edu.

DIGITAL LIBRARIES AND EDUCATION

The future for academic and research libraries can be an exciting and challenging one, at least for those libraries that are both able and open to change. This article presents highlights from the sixth International Summer School on the Digital Library, held in 2001. Two of the three courses that comprised this year's summer school focused on roles for libraries in education and electronic publishing. The other course focused on managing the actual change process towards a new kind of library. For more information, see www.ticer.nl/summer01.

Jola G.B. Prinsen, "A Challenging Future Awaits Libraries Able to Change." *D-Lib Magazine*, November 2001.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2001, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Technology in the Library

continued from page 1

tions for connection to OCLC, as cataloguing developed into a networked activity. Magnetized security tags were added to books, and scanners installed at the library entrance. Copy machines became very important for both staff and patrons, making possible the use of pieces of already-published texts.

The digital library

As the traditional library – the building with books – continues to add technologies, a separate conception of the age-old institution has taken shape: the digital library. In essence it is a repository of digitized texts and other forms of information accessible any time from any place, an equivalent and substitute for the library of print on paper. This thing does not exist beyond prototype or incomplete form, nor is it likely; the task of converting all print to bits is almost too large to contemplate.

At present, the digital library's value rests on two principles. The ability to gather, search, and retrieve documents online has already been immensely successful, establishing that collections of texts in digital form can fill some of the expectations we have had for libraries. This bodes well for the future of distance education and in fact for all instances where access to actual books is not possible. The second principle is that the digital library is a hypothetical entity that allows us to re-think what a library is and needs to be. Even if all its contents could be rendered digitally, which of its remaining functions do we want to retain, and how would they be carried out?

Between real libraries as they are today and the notion of an all-digital library lies a zone transition and mixed states of being: the old and the new co-existing sometimes in competition, occasionally in cooperation, and still others in plain redundancy.

From the back office

Acquisitions and subscriptions for physical materials are well along the way to processing over networks, as basic transactions in electronic commerce. Most cataloguing today is "copy cataloguing"; because most books and other library holdings are not unique, the data to classify and describe them is generally imported from the Library of Congress rather than worked up locally (and redundantly). As a result, the amount of labor required to catalog each new book or other object is substantially reduced.

> *Between real libraries as they are today and the notion of an all-digital library lies a zone of transition: the old and the new co-existing sometimes in competition, occasionally in cooperation, and still others in plain redundancy.*

An even more important by-product of standardized cataloguing and electronically communicable records has been the rise of interlibrary borrowing and document delivery. Libraries increasingly depend on their ability to locate and borrow materials because they find it impossible to buy all the titles their patrons might want. The key to the movement of materials among libraries is the online catalog.

Another form of materials acquisition that is growing rapidly is online texts, images, data, and other information supplied under subscription or license. These are increasingly Web-delivered, though many began as CD-based media. The need to balance convenience of access with appropriate limitation to patrons covered by the license or subscription is at the forefront of current needs to authenticate network users, ensure adequate bandwidth for acceptable data transmission rates, and provide network access at all places where academic work is done.

A further development in the trend to replace outright acquisition with access to online sources is pay-per-use. Typically, a library establishes an account with a balance against which usage is deducted as it is incurred by that library's patrons. In this model the library's role is reduced to that of a broker between the information provider and the user. From the technology view, any sense of "library" either vanishes in the concept of "network" or shifts from the campus to the actual provider of information.

At the reserve desk

Libraries have always had difficult issues at the reserved-materials desk. Copyright limitations have always been stretched in order to accommodate the need to provide multiple copies of articles for student use. Even greater difficulties arise from the inclusion of faculty-provided materials for reserve: the provenance of those documents is outside the control of the library, which nevertheless holds the institution's responsibility for copyright compliance. As libraries are asked to in-

continued on page 6

CIO Leadership Series

Applying *Principled*

A remarkable book that should be read by every higher-education CIO is Stephen Covey's *Principle-Centered Leadership*. In it, Covey outlines the parameters of a principled-centered approach and in detail, offers the characteristics of leaders who embody this approach. He covers all four dimensions of personal, interpersonal, managerial, and organizational applications. The book describes what the principles are, why it's important to become principle-centered, and how to do it.

Briefly, the principles are trustworthiness; trusting others on a personal level; managerial empowerment of others; and organizational alignment. In this article, we're going to take a look at the ways in which these four principles can be applied to the work of a CIO in higher education.

Trustworthiness

As Covey describes it, this is about both character and competence, so both *who* the CIO is as a person and what the CIO can actually *do* are important here.

For a CIO, character is paramount, both in relation to the institutional community and in relation to the IT staff. It means making only those promises that can be kept. A real danger for a CIO, especially a new one, is getting into a position of trying to please everyone by saying yes to everything they ask for, but then running up against the reality of limited IT resources and an already-overworked staff.

The good will a CIO generates among the user community by seeming to be cooperative and helpful will dissipate in the blink of an eye when those promises cannot be delivered upon. It is not necessary to fulfill every request of every user – a CIO doesn't have to be a superman or superwoman. But what is important is that the community and the IT staff can trust what the CIO says, under all circumstances; if they can, they will become very strong allies and supporters.

Competency can be a challenging issue, especially for a CIO who does not have a technical background. Managing technical professionals involves generating and maintaining their respect – the easiest way to do this is by knowing what they know. Of course, most CIOs can no longer claim to be competent in current technologies, but even having the right background and experience can help a lot. For one thing, it gives the CIO perspective on the unique nature of the issues in technology so that he or she can contribute something intelligent to almost every discussion in IT, even without technically currency. In addition, the fact that the CIO has "delivered" in this area in the past gives him or her some standing that can be drawn upon. But it is also important to be careful that not to overblow one's technical "chops." The staff will see through this in a nanosecond.

Trusting others

This is the most important basis for healthy interpersonal relationships, and it is those relationships that can mean success for a CIO. Unfortunately, trusting others isn't always simple to do. For one thing, it is too easy to become cynical about the users – we've all seen this happen too often. It is easier (and often, funnier) to characterize the user community as know-nothings, who are too demanding, too ignorant about technology to do anything useful, even too incompetent to run their own areas. Think how often we have described the faculty as 1) child-like, 2) prima donnas, or 3) both. But what we often base this on is our own inability to be able to see the world from their point of view.

For example, a CIO may rail against the faculty because they refuse to make much use of the institution's administrative information system, choosing instead to complain about how much money is spent on administrative computing in relation to academic computing. But, the CIO's thinking goes, if they would only take the time to see how useful the information system could be to them, they would understand much better the value of this tool to everyone on campus (and therefore be better able to justify its expense).

The next logical step is to characterize the faculty as stubborn, not willing to invest the necessary time to learn something new, anti-technology, and so on. In fact, what may be going on is that the administrative system is hard to use, not user-friendly, cumbersome, (how many schools are still using *character-based systems*?!), produces unreadable reports, has no direct access to data, and so on. And so, the faculty is very appropriately resisting being drawn into using a tool that is ten (or more) years behind the times. Being able to hear what message the faculty is conveying in these circumstances – even if they are not saying it directly – depends on trusting that they are reasonable and intelligent people, and that they have a valid and supportable opinion.

Empowerment

This word has become a cliché, unfortunately. But it has genuine meaning when we think about the desirability of having an IT organization in which supervision from above is unnecessary. This is when the CIO is a source of help rather than a taskmaster; this is when there are performance agreements (not unlike the service level agreements between IT and the user community); and this is where the needs of the institution nicely and effectively overlap with the needs of each IT staff member.

Empowerment means that each person in IT is using his or her own judgement to make decisions. Of course, this is within a framework of values and objectives that have been arrived at earlier, but it also leaves room for much individualization.

For example, many of us can remember a store clerk who, right on the spot and without asking anyone's permission, discounted an item we were interested in. That very likely left us with an excellent impression and positive feelings not just about the clerk, but of the item we bought, the store itself, and even, perhaps, the whole experience of shopping. So, too, we can use every encounter between a user and an IT staff member to lead to such positive results.

Making sure that the IT staff has discretion in the way they interact with the users and the kinds of things they can actually do for them – again, right on the spot and without asking permission – will almost certainly lead to happy outcomes for everyone involved.

Another example is in group decision-making. It isn't always necessary, or even desirable, for the CIO to be involved in making every decision, even large ones. It can be, perhaps more often than we realize, a very effective strategy for the CIO to be informed of the decisions the staff as a group has made. Selecting who from IT will sit on the strategic planning committee, for example, or designing help-desk policies, or conducting user surveys and acting on the results are just some of the ways the staff can be empowered. Of course, the CIO has to make sure that the institution's values and objectives are included in this decision-making, but that does not always require actual involvement in crafting the decisions themselves.

Alignment

It is important that the IT organization be aligned with the values of the CIO, and as we have mentioned in the previous sections, for principled-centered leaders, those values are grounded in trustworthiness, trusting others, and empowerment. If this is the case, chances are strong that the organization will be relatively flat and wide, and quite flexible. It is usually in organizations that lack trust where the structure is rigid and very hierarchical (mostly so that everyone will know his or her "place").

One of the interesting phenomena in higher education is the departmental separation between academic and administrative computing. In a low-trust environment providing little or no empowerment, the lines between the two departments are often drawn as clearly and as starkly as possible. A "separation of duties" – a chart of who is responsible for which task under what circumstances – will often serve as the guide to behavior, and woe to the misguided staff who do not adhere to the chart's definitions.

The real problem with this is that generally, the big losers in this environment are the users – they are the ones who have to figure who to call or see with what kind of problem and, further, to risk a negative response or even a reprimand if they make a "mistake." In a high-trust environment, every request for service that comes in from a user is considered to be everybody's responsibility. The person who first receives the request, regardless of department affiliation, should be the one who either deals with the request directly or coordinates and marshals the resources needed to fulfill the request, even if that means that the resources come from more than one department. In an environment in which IT is working well, the typical user cares a great deal about and relies on the quantity and quality of IT services, but almost never cares how many departments deliver those services, what the departments are called, who they report to, or even, how they define themselves. And if the IT folks don't care either, the users will invariably receive better service in the long run.

While organizational structure may be the most visible manifestation of alignment to one's values, the concept actually goes beyond that. In fact, everything a CIO does, every action, every plan, and every strategy should be aligned in order to achieve maximum effectiveness.

Models

The good news about leadership is that we can find examples to emulate. Effective leaders are among us everywhere – and not only in formal leadership positions. One way to recognize them is to look for certain characteristics. The characteristics of principled-centered leaders, as Covey has studied and described them, are: they are continually learning; they are service-oriented; they radiate positive energy; they believe in other people; they lead balanced lives; they see life as an adventure; they are synergistic; and they exercise for self-renewal. Let's resolve for 2002 to find models of leadership to emulate. LF

BEST COPY AVAILABLE

Technology in the Library

continued from page 3

clude network-based information to the online extension of reserves ("e-reserves"), the challenge to assure copyright compliance grows much harder. Part of the difficulty is the lack of reasonable means to identify electronic documents, to distinguish between original and copies, and between legitimate and illegal copies.

Through electronic reserves, libraries come on to ground very similar to that of courseware management systems: they become publishers (and not just network access providers) of information. The weight of responsibility for the authenticity, quality, and legality of the material made accessible in this way is divided between the institution and faculty as individuals.

Just because information is accessible does not mean that it can be used acceptably. This paradox has special irony for libraries, whose mission has always been to acquire and distribute books and materials. They were traditionally the gatekeeper for the larger institution, vetting sources for their quality and ensuring that acquisitions were legitimate. Now they find themselves dealing with electronic documents for which they have not been able (or asked) to carry out either of those filtering roles.

Printing and scanning

Inside libraries patrons use photocopiers and printers to make their own copies of materials they find useful. Single copies and brief extracts are usually not illegal, but serious questions can be asked about large copy runs and extensive appropriation by copy. By making these technologies available, the library puts itself in the position of providing a means to copy that it is then unable to regulate without an unreasonable degree of intrusion into what patrons are doing. Before photocopiers and scanners, the copying of documents in a library was hardly practical and probably easy to prevent.

Audio/video

Machines to play back audio and video recordings have been in libraries for quite a while now. It has always seemed natural that information in these media be included in a library's holdings. Some libraries even report that videos can be as high as twenty percent of all circulations. Housing these materials and the play-back units puts a strain on the always-growing need for space in the building.

> *By making these technologies available, the library puts itself in the position of providing a means to copy that it is then unable to regulate without an unreasonable degree of intrusion into what patrons are doing.*

On campus, the library is just about the only facility whose normal, annual activity – in acquisitions – inevitably leads to outgrowing the space. But here the prospect that audio and video recordings will be network-delivered some time in the future gives reason for hope to recoup the space that audio-video now takes.

Computers and LANs

In a similar fashion, libraries have scrambled to equip themselves with personal computers to accommodate patrons' needs to write and to use networked information. Aside from issues of appropriateness of that use, the space issue repeats itself.

Another drain on library resources posed by computer labs is in technical support. When the institution provides the equipment, it incurs the expectation that it will assist those who use it – even beyond the obvious need to keep it in good repair. Covering these new obligations leads a library to divert staff time and expertise that is invariably in short supply in the first place.

Some academic libraries have used new computer labs deliberately as a means of restoring declined numbers of students coming into the building. While providing those facilities surely contributes to the good of the campus, it is not strictly a library-specific benefit, nor is it likely to remain a good idea if the library finds itself short of shelf space and therefore in need of a building addition.

In the past, libraries used patron "gate-count" as a measure of their usefulness, but the value of that metric has faded with the advent of networked accessibility: the library is open even when it is closed. Still, the habit of associating traffic with service dies hard.

Wireless networks

Some technological innovations now hold the promise of easing the library's competing demands on space. Wireless networks allow any public area in the building to become network-enabled. If patrons have laptop computers or PDAs equipped to use this form of network connection, then the library has less need to devote precious floor space for a facility with that exclusive use.

BEST COPY AVAILABLE

To the extent that patrons bring their own computers, the library can withdraw from the space and user-support commitments it undertook to accommodate computers in the first place.

Self-service

A significant amount of expense at libraries comes at the circulation desk. While the task of checking out books is not difficult or even time-consuming, it is being exacerbated by the staff's need to handle the increasingly numerous lending rules that come with the borrowing privileges that academic libraries now typically offer to a wider clientele.

Devices now exist that allow patrons to check out materials themselves, taking advantage of the bar code on the user's card and the book to conclude the transaction. Every routine check-out that can be handled in this fashion frees library staff to address exceptional situations. The chore of gate-keeping makes little sense to accomplish with valuable staff resources when those are in short supply.

Automated warehousing

An interesting contrast to open shelving is the use of warehousing methods of book storage and retrieval. Motivated by the need to conserve space, a library might put part of its collection in a facility not unlike a warehouse. Books are stored according to size, frequency of retrieval, or whatever criterion works well for dense but efficient holding. They are then "paged" in response to requests, perhaps even picked out by robotic machines. A few such storage units are in use already.

What is lost, of course, is the patron's ability to browse the shelves and leaf through (or even touch) the books. On the other hand, closed stacks usually have fewer mis-shelved books just because the books are less frequently removed and are tended by staff who are more likely to keep books in their right places.

The warehousing approach to storage also would reduce the number of volumes temporarily lost through mis-shelving and leave a record of book movements to and from storage.

One of the largest barriers to more accurate shelving is that librarians have no way of knowing how many times a patron is unable to find a book where it should be. While the library catalog system tells where a book should be, it has no way of actually verifying that it is there.

Anticipations

If bar codes were also placed on book spines, a form of automated shelf-reading would be much easier – a way to reconcile shelf contents with database information.

Improvements in scanning technologies so that bound materials could be scanned without unbinding would clear a major hurdle to media transfer. If the speed of scanning and the quality of optical character recognition can be increased substantially, then the prospect of more digital libraries improves greatly. And if some form of single interface to all library services and materials can be developed and delivered for the PDA, then a new kind of library will indeed take shape. TW

> **"Most large companies now have architecture specifications. Cost is one reason for this but in my view the most important driver is the simplicity of the same standard stuff for everyone. The cost of everyone having all the same stuff – in terms of cheaper administration and much more usefulness for all, since you don't have to know what the others have – far outstrips the extra cost of the number of fairly mundane users who are over-equipped."**
>
> Espen Andersen
> "Personal Technology Architecture"
> *Ubiquity*
> Volume 2, Issue 40 (December 11-17, 2001)

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. What does "open source" mean? Will it make inroads in campus IT?

A. *"Open source" means access to the source code. But it also involves users in a collective project to maintain and develop the software – as they contribute fixes and enhancements back to the user community. Linux is the best known open-source item. Other examples include the Apache Web server, PERL, BIND, and sendmail. Those were all written to be in the public domain. Some originally proprietary software, such as Apple's Quicktime, have been converted to the "open" mode of intellectual property. The open-source movement might strike the casual observer as anarchic or chaotic, but in truth its major products have proven robust and stable. Open software has been more popular with technical workers than the rest of the computer-using world. Anyone using the Internet is using open-source software unaware, because many common utilities in browsers and servers are built with those products. Academic institutions, like commercial companies, have been reluctant to abandon their major brand-name software. It remains to be seen whether they will continue that reluctance if license costs remain high, and support continues to disappoint. Of course, "open" software already co-exists with proprietary – and so the future might bring a change in the mix, rather than the outright switch from one to the other.*

Q. No matter how many other things improve on the campus IT scene, academic-discipline labs remain a support headache. Why is this? What can we do ?

A. *Part of the problem is that each of these labs has software, data, and peripheral hardware needs that are special, and therefore harder to support effectively than environments where all the machines are pretty much in the same image. But a big part of the problem comes from usage and organizational issues. Academic departments manage their labs with varying degrees of competency and efficiency. In some cases the task is simply greater than what they are able or willing to handle. The best tactic for the campus IT organization in its effort to support these labs is to negotiate service-level agreements with each lab-owning department. In some cases IT involvement will be minimal, in others it will essentially need to take on all the support. In any case, agree what the division of responsibility will be.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

Joan Kad
ERIC/IT
Syracuse University
621 Skytop Rd, Ste 160
Syracuse, NY 13244

BEST COPY AVAILABLE

printed on recycled paper

THE
January 2002
Volume 17
Number 10

EDUTECH
REPORT

The Education Technology Newsletter for Faculty and Administrators

Faculty Development and Information Technology

Inside the faculty profession, issues of "development" pervade every career level. The term covers the three traditional domains of faculty responsibility – teaching, research, and service to the institution – and some related skills, such as grant-writing and instructional technology. Development activities range from training workshops to participation in academic-professional organizations. For the most part, faculty decide for themselves the kind and amount of development they wish to pursue.

New faculty find themselves primarily occupied with building towards evaluation for tenure – if indeed they are fortunate enough to have a tenure-track appointment – and need to focus their professional development on meeting that critical goal. They are frequently advised by deans and faculty peers to postpone pursuing development interests that do not directly support winning tenure. Unfortunately, instructional technology skills development is often one of those deferred subjects.

Those who have adjunct or term appointments face different obstacles to development in general and instructional technology in particular. Faculty not in the tenure track usually need to shuttle among part-time appointments or prospect for additional or future work, leaving little time for skills and professional development. For their part, academic institutions usually consider they have little stake in assisting these nomadic faculty in matters of development. While this stance reflects the realities of tight funding for assisting the full complement of faculty, it is also short-sighted in ways that are becoming all too apparent as colleges and universities employ ever more adjunct and temporary faculty and increas-

continued on page 3

"Defining minimum information technology and resource requirements can be like establishing a 'poverty level' – local conditions and expectations matter. It may be useful to establish different levels for different departments or divisions ... each area may need its own 'embarrassment level.' What would those responsible for technology be embarrassed to admit that they couldn't provide for some of their people?"

Steven W. Gilbert
"Achieving the
Embarrassment Level."
SyllabusWeb
January 2002

NEWSBRIEFS

LIBRARY OF CONGRESS PORTALS

Portals to the World contains selective links providing authoritative, in-depth information about the nations and other areas of the world. They are arranged by country or area with the links for each sorted into a wide range of broad categories. The links were selected by Area Specialists and other Library staff using Library of Congress selection criteria. When completed, the project will include all the nations of the world.

See: www.loc.gov/rr/international/portals.html.

WEB PUBLISHING CURRICULUM RESOURCES

The Web Publishing Curriculum is housed at the University of Oregon and has been in existence since 1994. In the summer of 2001, the Web Publishing Curriculum was redesigned to incorporate many of the latest standards, including HTML 4.01 and Cascading Style Sheets. The site provides workshops on basic Web mechanics, Web publishing processes, and Web page creation. It also provides notes on the anatomy of an URL, guidelines for good practice, and links to other related sites. Its useful information is definitely a wonderful resource for novice Web users.

See http://libweb.uoregon.edu/it/webpub/. From *The Scout Report*, Copyright Internet Scout Project 1994-2001.
See scout.cs.wisc.edu.

CLIFFSNOTES FOR THE PALM

Palm and Hungry Minds are bringing CliffsNotes to students in an e-book format. The popular CliffsNotes e-books cover a wide spectrum of books from English literature to test preparation and Advanced Placement reviews. Titles include *Romeo and Juliet*, *The Scarlet Letter*, *The Odyssey*, *The Crucible* and *The Jungle*, among others.

See http://www.thejournal.com/magazine/vault/A3820.cfm. *T.H.E. Journal*, January 2002.

BUILDING INTELLECTUAL CAPITAL

With the knowledge worker perceived as the key competitive advantage, companies are increasingly evaluating the skills of their employees and tracking their knowledge growth. According to one study, an increase of $680 in a company's training expenditures can generate, on average, a 6% improvement in total stockholder return the following year. And as life-long learning becomes necessary for success, adult learners are taking more responsibility for their own continuing education. They seek timely delivery of more relevant and job related content, leading to an explosion in community college enrollment, job specific certificate programs and non-credit courses.

TrendsReport 2001, http://www.trendsreport.net/education/2.html.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2002, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Faculty Development...

continued from page 1

ingly rely on many of these faculty for the long run.

Tenure and development

After tenure, faculty face long careers that are generally spent at the same institution. During this time they have little incentive, at least in terms of encouragement or requirements from the college or university, to press professional development beyond what they presented for the tenure review.

The logic of tenure is, of course, that faculty are independent professionals whose employment needs to be sheltered from pressures that would deflect them from exercising their own judgment in teaching and research. Against this background, the place of technological skills and methods in instruction is often unclear. Only a few years ago, many faculty viewed this subject as either an option they were not sure was worth what appeared to be a heavy diversion of time and effort or an option that was purely voluntary and therefore not necessary.

But recent evidence, notably the rapidly growing rate of faculty use of courseware management software, suggests that technology adoption and subsequent pedagogical innovation are coming to be viewed as mainstream activities. These same faculty find that technology merits its reputation as a time-sink.

Not just support

While campus IT groups are still struggling to scale up their resources to support the unprecedented and unpredicted growth of their clientele, faculty wonder how they will be able to make the developmental transition that they would like to make. Until recently, the most pressing need in campus IT was to catch up with infrastructure and basic usage shortfalls. Most institutions have now turned the corner on problems of assuring a reasonable update and replacement cycle for one hundred percent of hardware and software, and faculty have mastered the basics of computer and network usage.

More like partners

Now that the technology platform is in place, the task shifts from support to development. IT organizations and staff are having to make a transition of their own, changing from the fix-it role to one that is more like a partnership in professional development with faculty. There is a fine irony in this turn of events: faculty were always quick to tell IT staff that they could never hope to understand faculty work, but now they are singing a different tune, not wanting to face the change task alone.

While campus IT groups are still struggling to scale up their resources and methods to support the unprecedented and unpredicted growth of their clientele, faculty wonder how they will be able to make the developmental transition that they would like to make.

IT staff probably do not need to worry too much about the degree of retooling of skills they will need to undertake, as long as they are reasonably current with the technologies faculty are asking to use: Web page production, mainly image acquisition and editing and audio processing.

Programming has all but vanished as a component of computer literacy, and so that old divide between support staff – who were typically not programmers – and the wave of faculty early-adopters of computers has receded. Because the skills threshold for using IT in the classroom is no longer a difficult barrier, faculty and staff find working together easier. Faculty no longer have to worry about failing to learn. Staff need neither advanced technical skills nor in-depth knowledge of the academic disciplines of the faculty with whom they work. The focus now is on bringing essentially the same suite of multimedia and Internet-oriented technologies to bear all across the curriculum. Everyone can sing from approximately the same page.

Assisting development

Some of the tried-and-true modes of training and development still work quite well. Summer and winter-break workshops, running several days or even a whole week continue to provide the time and focus needed to make good progress in learning new skills. This format also has the distinct advantage of being a lot like academic courses, the format that faculty know best and that feels comfortable.

For the independent-minded and self-directed and motivated, course release time and summer projects are still mainstays among modes of professional development for technology. This approach never scaled well; as in most walks of life, the percentage of self-starters (and per-

continued on page 6

CIO Leadership Series

Leading Integrated Librar

by James Estrada, Fairfield University and Geor

The first generation of Chief Information Officers has been providing leadership at colleges and universities for the better part of the last decade, and their numbers continue to grow as more organizations create this leadership position. These CIOs have primarily come from the ranks of librarianship and various areas of computing; they serve in various organization structures and lead any number of integrated operational areas.

The authors of the this article are both CIOs who represent both career paths and whose experience and backgrounds are also unique within the world of higher education and information technology; one author is a former library director and current CIO at a private liberal arts college, and the other is a former computer center director and current CIO at a large public community college.

The purpose of this article is to present the common ground and shared views of these two CIOs. This work is an attempt to offer some lessons learned and also, perhaps, an outline for colleges and universities who are still considering or embarking on the development of an integrated administrative structure including all or some of the following operational areas: libraries, administrative computing, academic computing, network services, telecommunications, media services, distance education, and institutional research.

The CIO's background

Both the CIO with a library background and the CIO with a computing background can bring a rich body of experience and a valuable set of credentials to the organization. Regardless of one's specific background, the CIO, much like any other senior administrator, needs to be a generalist.

Unless there is an unusual or specific need for someone with a particular background, the organization should identify candidates based on their ability to lead multiple areas with an understanding of the "science" of integrated technology and the "art" of motivating individuals to support the organizational goals within the framework of their area of specialization and expertise. The generalist need not be a technician, but rather a "big-picture" thinker who understands people and understands the current and future needs of higher education organizations.

> *Unless there is an unusual or specific need for someone with a particular background, the organization should identify candidates based on their ability to lead multiple areas with an understanding of the "science" of integrated technology and the "art" of motivating individuals.*

The CIO candidate should be someone who understands the academic mission of the organization and is committed to supporting that mission through every aspect of information transmission and reception: the reference desk of a library, the workstation of a computer lab, the network support phone center, the library acquisitions office, or the Web design area. In general, a candidate with this kind of experience and understanding is someone already in higher education; many institutions have found that CIOs who come from other industries face long learning curves in appreciating the higher education environment.

CIO candidates should demonstrate a commitment to learning, a broad organizational focus, and experience with project management. The evolution of information technology leaders has simultaneously grown out of different disciplines; therefore, prior titles should not be the focus of recruitment; rather, the focus should be the skill set needed by the individual college or university.

The CIO as a leader

Most higher education institutions have long employed managers to carry out the tasks and goals of departments within the organization; it is within these and other ranks that organizational leaders are usually born.

However, leadership theorists have often made the distinction between an effective manager and an effective leader. In this case, the CIO as a leader needs to understand multiple functional areas, and must be enthusiastic about how all of these integrated areas are more effective, more efficient, and more powerful in enhancing the learning environment for the student, the teaching and research environment for the faculty, and the administration of policy and procedure for the administrator.

In addition, understanding the appropriate pace of organizational change – which is different for every institution – is an important skill of a leader. A broad base of expertise and knowledge is needed to lead diverse individuals and groups to accomplish a common set of goals for the institution.

The CIO as an organizational leader must also understand the multiple and sometime competing functions of a learning organization, along with the external environment with which it interacts.

It is within this "bigger picture" framework that the CIO can combine his or her background and experience and ultimately make decisions that benefit all divisions within information technology.

The successful CIO

In order to provide successful leadership in Information Technology, one must be committed to the basic principles of communication. Since even the word technology can often elicit mistrust and misunderstanding throughout the organization, it is important that the CIO develops a consistent and authentic message and applies it widely to different situations.

The CIO should use his or her own style to consistently market the services of each area of IT and to clarify project goals, timelines, and purpose. This is in an effort to stabilize the expectations of all college and university personnel and students. Appropriate expectations are built on open communication, listening, and responsiveness with all institutional constituents, from the Board of Trustees to the prospective student, and they are critical to the CIO's success.

In addition to possessing a commitment to communication, the CIO should foster an environment that promotes authentic team-building, shared decision making, and utilization of expertise among IT staff members.

Providing leadership through a systems approach and adherence to human capacity building can create a more satisfied workforce and ultimately, provide a framework for effective staff retention strategies. A strong and successful effort in these areas means clear translation of the organization's vision, mission, and goals.

> *Providing leadership through a systems approach and adherence to human capacity building can create a more satisfied workforce and ultimately provide a framework for retention strategies. A strong and successful effort in these areas means clear translation of the organization's vision, mission, and goals.*

Each employee in the division should be able to master core competencies that support these aspects of the organization. Cross-functional prioritization processes within the division, staffing, budget allocation, and project selection can aide in creating teamwork that builds a sense of cohesiveness and trust among a group of employees and departments who may have previously viewed themselves as organizationally non-related or even adversarial.

Through fair and inclusive planning, participation in the allocation of resources, and alignment of initiatives, the CIO can identify shared goals, promote a shared vision, and bring about healthy organizational change. ■

James Estrada is Vice President for Information Services and University Librarian at Fairfield University, in Fairfield, Connecticut. In September 1998, following an external review, all information technology services were consolidated under a single administrative unit, the Information Services Division. The purpose of the reorganization was to create a stronger link between the University's planning and allocation of resources and its strategic plan, highlighting the importance of the use of technology throughout the university and the curriculum. Mr. Estrada, who had been University Librarian and Executive Director of Academic Computing since 1996, was asked to lead the new division. Mr. Estrada's areas of responsibility include IT, the Media Center, the campus television network, and the library.

George Kahkedjian is Vice President for Information Technology at Columbus State Community College, in Columbus, Ohio. He occupies a position created in 1997, and into which he was hired that year. Mr. Kahkedjian's areas of responsibility include a full range of IT functions, the Educational Resource Center, the library, a television studio, and the office of Institutional Research.

BEST COPY AVAILABLE

Faculty Development

continued from page 3

sistent stalwarts) in the faculty is in fact rather small. But this avenue of support is still valid for some and has the added benefit of keeping the fast-track learners out of the workshop sessions, which must respect the pace of the slowest learners in order to hold together. Faculty are basically paid in time; their partners in training and development need to understand that fundamental tenet of faculty existence or they will hear impatience and frustration about wasted time.

New partnerships

An important mode of faculty development coming into more widespread use is to pair faculty with students in a kind of reverse-mentoring relationship. These students may have taken one or more pre-requisite academic courses and also a training workshop to prepare them for this work.

For faculty, this mode of learning is less cumbersome than a workshop and more stimulating than working alone. The main value of the student is not, and must not be, to do all the rote work off on the side. Instead, the point is to work as equals; both student and professor learning and teaching each other. For those faculty not unduly intimidated by the prospect of relaxing the strict distinction between teacher and student, the method works very well. Many faculty who have made good progress by working in this way report that a well-prepared student can in fact contribute to professional development.

Faculty often find similar benefits by working closely with one or two colleagues, not necessarily from the same department. The key to understanding why these associations succeed is to realize that what is being developed is both technical and conceptual. The second of these is actually the bigger and harder part of the task, and the one for which a colleague is well suited, especially if that person's academic discipline and preferred pedagogies are somewhat different.

Most faculty receive no substantial training in teaching methods during graduate school. When they later want to think and talk about teaching they often find themselves ill-prepared for the conversation. But Math and English faculty can share good insights on how Web forums can help students come to seminar sessions better prepared. And everyone can share thoughts on what makes a good or bad PowerPoint presentation.

> *Most faculty receive no substantial training in teaching methods during graduate school. When they later want to think and talk about teaching they often find themselves ill-prepared for the conversation.*

Practical aid

All development and training can be substantially strengthened by a few simple expediencies. Small cash grants or petty-cash funds to cover items such as software purchases, additional RAM, a bigger monitor, or special peripherals (e.g., a film scanner) can smooth a lot of the inevitable growing pains that result from taking a computer that was originally intended and equipped for word processing. A combination of small additions can go a long way towards making that same computer a suitable multimedia station – and this is the most commonly needed enhancement to equipment during the course of ramping up one's use of educational technology.

Other practical supports typically reside in a faculty technology resource center – a room equipped with specialized computers and software. These facilities are perfect for meeting occasional needs, such as digitizing a stack of photographic slides, or for trying out software too expensive (or difficult) to risk buying sight-unseen. These are also places where IT staff assistance can be available as a matter of course or by appointment. They are also good for serendipitous encounters with colleagues working on the same issues.

Consultants brought in to do critiques of faculty work in progress and to assist and guide the IT support staff can be very useful. Few small institutions (or units of larger ones) have instructional design experts. Once faculty start picking up the basics of creating Web pages and other online materials they find they need help to advance beyond simple notions of how to design effectively – or even just to learn the next set of issues to tackle.

A good graphic designer (with some background in the study of vision) will explain that blue is not a good color to use extensively on a Web page because a significant number of people find it hard to pick up against a background containing any other colors.

And support for morale

Compared to other kinds of workers, faculty are rather well shielded from rewards and punishments of the commercial world. With respect to professional development, it is rarely the case that a faculty member will benefit materially from a more active program of professional development. Nor is an individual likely to suffer substantially for developing hardly at all. As a result, morale suffers in complicated and persistent ways. Some faculty who make extraordinary efforts will feel under-appreciated due to a lack of recognition. Others will feel guilty for not doing as much as they themselves think warranted, but will seem defensive or even hostile as a result.

For as long as computers have been in academic use on campus some faculty have advocated that tenure and promotion criteria should recognize work in instructional technology as a special category – on a par with teaching, research and service. Over three decades of debate, not many institutions have taken that step. That refusal is likely the right decision. Technology should serve the mission of education and not try to justify itself as something apart. But even so, awards, cash prizes, and public acknowledgment and recognition for extraordinary achievements in instructional technology could be much more widespread than they are now.

Institutions could do much more to hire, orient, and train IT staff to be stronger colleagues for the faculty. The reality of faculty existence on all but the very largest of campuses is relative isolation in their work. Few scholars of Irish poetry or polymer chemistry have the luxury and support of multiple colleagues in the same specialty. IT staff cannot fill that gap, but when they work with faculty (as few other staff do across the whole campus), they could be better attuned to who faculty are and how they work and think. Certainly those faculty who spend a lot of time working with IT would notice the difference and would appreciate the company.

Academic administrators could do more to promote consulting work for their faculty who have had good success in their own development and have the inclination and talent to help colleagues at other institutions. Consultants are almost invariably treated with courtesy, rapt attention, and even a degree of awe. They are also paid cash for their work. All of these benefits could be good reinforcement to reward outstanding achievement on the home campus. These connections might be facilitated by senior administrators (as they already do regarding faculty as guest lecturers) – a good boost to morale, and cost free.

The learning community

Faculty were the original "life-long learners." The goal of all professional development for faculty must be to sustain constant learning, innovation, and adaptation to change. For development in instructional technology the possibilities seem numerous and the limitations mostly connected to past weaknesses in IT support. To be fair, the advent of the Web brought an upsurge in faculty interest in technology that nobody predicted, and from which IT organizations are still trying to recover.

But when an instructional technology workshop brings a retired dean and brand-new and part-time faculty to the same learning experience, we must be on to something good. TW

> **"As we improve our online instruction, we need to keep in mind where we came from and what we went through, so that we can act as resources for our students. As the creators of these courses, it is important that we facilitate the comfort and success of the consumers of the product."**
>
> Sharon K. Anderson and Val Middleton
> "You Want Me to do What? The Cultural and Psychological Struggle of Putting a Course Online"
> *The Technology Source: Case Studies*
> January/February 2002

Let us know...

Please contact us if you would like to reprint or re-publish an ***Edutech Report*** *article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Does it make sense for an academic institution to hire a CIO from the corporate world? On the one hand, we think we could benefit from the different perspective such a person might bring us. On the other, we worry about the "cultural" differences between the worlds of business and academe – and the adjustments necessary in moving from one to the other.

A. *This is a classic dilemma facing hiring committees in CIO searches at colleges and universities. The differences in culture and perspective are real, and not just a matter of stereotype. The cross-over from business to academe in IT management does not happen often enough to give a useful record from which to generalize. Still, the transition is possible in both theory and practice and is probably one that we shy away from too easily, not stopping to think how we can help it happen and how much we might benefit from it. We might need to provide candidates a fuller picture of what we interpret the CIO's role to be in the academic setting, with appropriate specificity to our own campus. When screening applications, we need to use more imagination to think about how a candidate's experiences in the corporate world might complement the skills and views already represented in our senior management on campus. This is all more work than we normally expect to spend in a search, but maybe it is the price of an interesting opportunity for the institution.*

Q. How much attention do campus IT networking groups need to pay to the bewildering changes and spread of new technologies out in the telephone world?

A. *Just when it seemed internet protocol (IP) was going to subsume all the other communications methods, that picture is quickly dissolving. Information technology managers need to catch up with new developments in proprietary technologies and services for cell phones and personal digital assistants (PDAs). In fact, much of the progress in the world of wireless networking is happening outside the scope of campus routers and PBXs – the gatekeepers of our wired services. We need to be careful not to presume that because the hand-held devices are not on our list of principal hardware supported by IT, they are not going to be important. We once thought that way about personal computers.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE February 2002 Volume 17
Number 11

EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Behind the Portal

For good or bad, Web portals remain one of the hottest topics in information technology for higher education. They have become the almost obligatory next development in campus information delivery systems; consequently everyone has one, has something like it, or is out there shopping for one. In these pages (February 2000), Howard Strauss explored the ways the term is used and mis-used. What passes for "portal" ranges from gussied up Web front-door pages to points of entry to user-centric information worlds. What matters in these distinctions – in the variety of things being called portals – is that the full import of the idea is nothing less than a reversal of how we have treated online information systems. Mostly we publish information, turning the Web into the electronic version of glossy brochures. We decide – that is, control – what goes out there. The portal idea is different; it is about sharing control with those who want to know.

As colleges and universities grapple with the portal concept, we get a special opportunity to look at issues behind the portal's public face. What information strategy is at work behind the portal mechanism? How are data finding their way to the point of access? Who is gathering and unifying this content? Is the institution technically and culturally ready to re-order its information world as necessary?

If the portal is the great solution, what is the problem it is solving? This is the old way of assessing value in technology, wise in its insistence on clarity and single-mindedness but naive in its blindness to emerging possibilities. Surely it is not that Web-published information is difficult to find. What is already "out there" is not the problem; the data behind closed doors is usually what

continued on page 3

"Unlike natural resources such as iron and oil that have driven earlier economic transformations, knowledge is inexhaustible. The more it is used, the more it multiplies and expands. But knowledge is not available to all. It can be absorbed and applied only by the educated mind. Hence, as our society becomes ever more knowledge-intensive, it becomes ever more dependent upon those social institutions, such as the university, that create knowledge, educate people, and provide them with knowledge and learning resources."

James J. Duderstadt
"Between a Rock and a Hard Place: Leading the University During an Era of Rapid Change"
The Internet and the University

NEWSBRIEFS

TEXT ANALYSIS PORTAL

Scholars at six Canadian universities will create an online portal for researchers in that nation – and perhaps around the world – who study electronic texts. The Text Analysis Portal for Research will offer access to databases of electronic texts and software for studying them. In addition, each of the six participating universities will create laboratories equipped with scanners, computers, and other hardware and software that scholars could use to study texts.

Canadian scholars have developed a number of databases – including collections of Old English and Middle English texts, Canadian aboriginal material, multimedia oral texts, and rare poetry – that will become accessible to scholars through the portal.

Karen Birchard, "Canadian Universities Will Create an Online Portal for Studying Texts," *Chronicle of Higher Education*, February 8, 2002.

STATE RESOURCE CENTER

The State Resource Center is one of the categories of LexisOne's free Legal Internet guide, a collection of 20,000 links organized into 32 categories (up from 24 categories in July, 2000). For each of the fifty states, the State Resource Center provides extensive lists of links to statewide offices, the state's legal branches, its counties, its rules of court, important legal forms, and more.

The site remedies the maze of many state government Websites, making it easier to find legal materials. For legal researchers, attorneys, and law librarians looking for state information, the site is a perfect place to start. The site will also be useful for other users who want to find information on state legal systems. See http://www.lexisone.com/legalresearch/legalguide/states/states_resources_index.htm.

Copyright Internet Scout Project, 1994-2002; http://scout.cs.wisc.edu/.

DIGITAL PRESERVATION

The PADI (Preserving Access to Digital Information) initiative aims to provide mechanisms that will help to ensure that information in digital form is managed with appropriate consideration for preservation and future access. Its Website (http://www.nla.gov.au/padi), managed by the National Library of Australia, is a subject gateway to resources about digital preservation.

See Hilary Berthon, Susan Thomas, Colin Webb, "Safekeeping: A Cooperative Approach to Building a Digital Preservation Resource," *D-Lib Magazine*, January 2002; http://www.dlib.org/dlib/january02/01contents.html.

The EDUTECH REPORT is published each month by EDUTECH International (**http://www.edutech-int.com**), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2002, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

BEST COPY AVAILABLE

Behind the Portal

continued from page 1

is at issue. If we ask the more enlightened question, "What is it good for?" we have to answer that it is essentially a breach in the wall we normally keep up between information and those who want to have it. Who gets to answer that question, and are we ready to listen? Either way, the reason for working on portals has to be strong, because the task is huge; the benefits have to be better than marginal.

Information delivery

Getting information from all the places it lives on campus to a single portal is no small challenge. Even a small campus has layers and islands of data that nobody ever expected to connect, much less deliver to a common access point. Student academic and financial data are the easy sources; physical plant work orders, the Chemistry department hazmat inventory, and the Art History digital images are more of a challenge.

Just knowing about and finding all of those sources is major work. The blunt truth of the matter is that on campuses of all sizes, we still barely know the landscape of information. It goes without saying that we almost never have anything like a map of that terrain, let alone any systematic effort to discover and exploit it. One of the valuable side-benefits of the portal frenzy is new-found interest in exploring what already lives somewhere online.

Once the information destined for the portal is identified we run into issues about who is responsible for talking to all of the "owners" and keeping track of the states of development at these sources – some of them works in progress, others all but untended and all but abandoned in place. Will the data continue to live in its existing locations, or will it move to a data warehouse – the previous great solution. The problem with data warehouses turned out to be that nobody had the time or priority of interest to manage these behemoths, particularly those warehouses that sought to gather a wide range of data. Can the data keepers be enlisted to cooperate? If the warehouse history is any indication, that will be a tough fight if they need to be asked to change anything they are doing within their own fiefdoms. How much easier it could be to coordinate them without asking changes is yet to be proven. At this level of behind-the-scenes jockeying, the fate of the portal depends on whether it seems likely to solve problems for the affected data-keepers or excite them regarding new benefits. This is just another version of the age-old battle between change agents and bureaucrats. Try to keep your optimism intact.

> *The blunt truth of the matter is that on campuses of all sizes, we still barely know the landscape of information. It goes without saying that we almost never have anything like a map of that terrain, let alone any systematic effort to discover and exploit it.*

Are we ready?

The technology behind a portal is daunting. Does our campus have the skills and experience to take on this project? Chances are that even keeping up with technology for the central Web pages server is a stretch; a real portal is a lot more than just more tricks with a Web server. It is also often the case that the care and feeding of the official Web sites is not covered by a core IT group. And so even if the skills are present on the campus somewhere, they might not be available to build the bridge from Web to data.

Maybe this sounds like an impasse that needs to be broken by outsourcing the portal's construction. Clearly, that route exists and has been successfully followed. But as in all outsourcing of systems, what is the strategy for bringing it back inside in the future if necessary? And are we willing to face the costs and the long-term management implications of constantly improving and updating a system that starts out as an extraordinary, elective project and then becomes mission-critical?

The obstacles

If the technical hurdle can be cleared, what about the cultural barriers? Has the institution already made the transition away from paper-based systems and dissemination? Is it going to be a problem to say to faculty and students "go to your portal" for information they now receive on paper or in person? For every campus that has made that transition and finds the question anachronistic, there are many more who have yet to cross that line.

For a portal to be more than just window-dressing for a collection of services online already anyway, and for it to win the credibility it needs in order to keep the information-tending community committed to it, it cannot be just another service for the most digitally inclined; it has to be the main source and focus. We

continued on page 6

CIO Leadership Series

The Rise of the CIO

by Mark Cain, Colleg

The position of chief information officer has been around now in higher education for a number of years. But what does it really mean to be CIO? This question has interested me for some time, and in order to find some answers I administered two surveys, one in 1997 and the other in 2001. I conducted it on the EDUCAUSE chief information officer constituent group list.

One hundred institutions responded to the 1997 survey, while 159 responded to its 2001 counterpart. These represented a wide range of schools, from the large to the small, the public to the private, the research- to the teaching-oriented, the doctoral university to the community college.

What is a CIO?

Individuals who consider themselves the chief information officers of their institutions have always gone by a range of position titles, yet the frequency of the use of particular titles have changed over time. In 1997, the most common title for CIO was "director," followed closely by "chief information officer" or some permutation, such as "chief information systems officer," "chief technology officer," and so forth. The other frequently used title back in 1997 was "associate vice president." Yet there was no real pattern; no title was widely or consistently used.

By 2001, a change appears to have occurred. Now, CIO is clearly the preferred title, followed distantly by director, and then by vice president, associate vice president, and executive director. And, interestingly, these titles are not mutually exclusive. It was not uncommon in 2001 to find a title such as "Vice President and Chief Information Officer." In cases like that, I noted the response in both categories.

In the four years between surveys, more and more CIOs had been elevated to the level of vice president. Also, while in 1997 most CIO respondents said they reported to the chief academic officer, in 2001 there is an almost even split; almost as many say they report to the president as to the CAO. More of them sit on the President's Cabinet now as well.

So what does it mean to be CIO? That varies widely from institution to institution, yet there does appear to be a core portfolio held by almost everyone. It includes academic computing, administrative computing, telecommunications, and the delivery of audio/visual media into the classroom.

> *It should come as no surprise that the greater the range of responsibilities, the higher the salary. People who report to the president and people who are vice presidents tend to make more money than the others.*

A respectable number of CIOs also have responsibility for institutional strategic planning, the library, and institutional research, but they are definitely in the minority. Other duties and activities showing up in "trace amounts" include cable TV, distance learning, printing, postal services, and copiers.

Position and salary

A question asked in 2001 related to salaries of CIOs. I did this because the "average" chief information officer salaries reported annually in *The Chronicle of Higher Education* make no provision for portfolio, place in the organizational hierarchy, or title.

I wanted to compare these factors with salaries to see if any patterns emerged, so I asked respondents to report their earnings as a percentage of the salaries of their institutions' CAO's and/or CFO's. It should come as no surprise that the greater the range of responsibilities, the higher the salary. People who report to the president and people who are vice presidents tend to make more money than the others.

So, what's going on? The portfolio of the CIO has not changed appreciably in the past four years, yet more and more of them are reporting to the president, more of them hold the title vice president, more of them serve on President's Cabinet. Why?

Growth and change

First there are some "nuts and bolts" reasons. In the past, chief information officers mostly just took care of the mainframes and the software that was installed on them. IT staff made sure wires got run to the appropriate locations and hooked up some terminals on the far ends of those wires. After a while, there came the realization that some of the folks out in the hinterlands might need some user assistance, so IT shops set up help desks, and life went on.

Then about twenty years ago, the personal computer – in the forms of the IBM PC and the Macintosh – crashed onto the scene. Since then,

in Higher Education
of Mount Saint Joseph

the number of systems on campuses, the PCs and the Macs and the servers and the network hardware, has grown at an astounding pace. In the aftermath of distributed computing, the CIO and IT staff must purchase, install, maintain and constantly refresh hundreds, and in many cases, thousands of systems.

More complication

The economics of higher education technology is also more complicated than it once was. PCs used to be purchased as capital items: buy one, buy another, get still another on grant funds, and hope against hope that someday you'd have some money to replace them. That certainly doesn't work today. Working up a replacement cycle for such a huge infrastructure is a lot more complicated than replacing a mainframe every three or four years.

Beyond the nuts-and-bolts reasons lies a more important one: on campuses across the land there is a growing realization of the strategic value of information technology in higher education.

It probably started when everyone discovered the World Wide Web in the mid-90s, because since that time nothing has been the same for the chief information officer. Here is just one example of the enormous and rapid change effected by the Web: it is now used by over 90 percent of college-going high school students to identify and choose the institution they will eventually attend; this has risen from a number somewhere in the 30-percent range just a few years ago.

Chief change agent

No longer merely a purveyor of hardware and software, the CIO could also be called the CCA, chief change agent, of the institution. Important, mission-critical student services, such as Web registration, are enabled by technology. Processes are being re-engineered, Web forms are replacing paper forms, and arcane manual procedures are being eliminated. Staff time can be reclaimed, the occasional position can even be eliminated. Higher education institutions are actually collecting money with technology: tuition and fees, spirit wear sales receipts, alumni donations, etc.

> *No longer merely a purveyor of hardware and software, the CIO could also be called the CCA, chief change agent, of the institution. Important, mission-critical student services, such as Web registration, are enabled by technology.*

By helping to avoid "lost opportunity" costs, reducing personnel costs in some instances, and actually making money though online collection of funds, it appears that technology is finally beginning to fulfill its early promise; it is finally beginning to pay for itself.

In the early years of higher education IT, computers were primarily used for computation. Now, their more important role is that of communication device. Connected by the ubiquitous network, computers send and receive information in the form of e-mail, e-journals, e-books, e-reserves, not to mention e-audio (including VoIP) and e-video. E-everything.

The power of the computer as a communication device has recently been greatly amplified by what may be the first "killer application" in higher education: the Web-based course management system. A CMS is so easy to use it is within the reach of almost all faculty members, and as a result almost all of them are doing the reaching. On my own campus, we've seen faculty use of IT for instruction increase from 30 to 80 percent in less than three years, in large measure because of the course management system we employ.

Added responsibilities

So there you have it. "CIO, I hardly know ye," so much have ye – of necessity – changed in recent years. Responsibilities have multiplied, accelerated, and become much more complex, and resources to do the work have, of necessity, also grown. The CIO now oversees key technologies and processes that support vital institutional strategies such as enrollment management, institutional advancement, student services, student learning, and faculty research.

No surprise, then, that the job of chief information officer has become one of the most important in higher education. We have become strategists, economists and change agents as well as "emergency medical technicians," and in recognition of our expanding roles, titles have been elevated, for many of us the president is our supervisor, and salaries have risen. ■

Mark Cain is the Executive Director of Information Services and Support at the College of Mount Saint Joseph in Cincinnati, Ohio.

Behind the Portal

continued from page 3

only have to look at course catalogs and campus newspapers to see that costly, time-consuming, and litter-producing publications live on indefinitely if their online versions just come along as added options. Multiply labor duplications many times to get a sense of why a substantial portal cannot be just another added service.

The herding instinct

Any quick sampling of college and university front-door Web pages shows the vogue for a kind of pseudo portal that foreshadows trouble for the portal concept. So many of these sites use as their point-of-entry design some version of, "For students, for faculty, for visitors."

The problem that this approach tips off is that the chief keepers of the information have decided that their clientele needs to be herded like sheep, that they are not going to find the English Department Web page unless guided through a routine that leads them to say, "I am a student. I want academic programs. Give me the departments list." And what if I am a student thinking about transferring to this school? Am I a visitor, or can I pretend I am already a student? I just want to get to the English Department page, and instead I have to play guessing games at the front door or fall back on "Search this site."

Why can't the main navigational scheme just try to shorten the path to information? Trying to predict data-seeking scenarios and then pinning those to a short list of general user identities suggests a basic mistrust of information-seekers' abilities.

Incomplete alternatives

Another unsettling sign is the proliferation of portal providers. ERP vendors, CMS vendors, "solutions providers" (e.g., Oracle, IBM), and now even computer systems vendors (Microsoft, Palm) all offer that their product can be the starting place from which everything else is just a click or two away. Of course, none of them comes close to covering the f[illegible] scope of information anyone at [illegible] college or university uses every day. The course management systems are building out from their own course-centered information universe. PDAs build out from a store of personal data. ERP systems start by determining how they classify campus beings – the herders and herded again.

> *Why can't the main navigational scheme just try to shorten the path to information? Trying to predict data-seeking scenarios and then pinning those to a short list of general user identities suggests a basic mistrust of information-seekers' abilities.*

Certainly there will be a shake-out among the parties competing to be the portal. Having multiple portals that marshal some of the range of information sources might seem an improvement in that each would reduce the number of different places we need to look for information. But even so, the cost in systems and manpower has to make us hesitate to follow that path. A special trap to avoid here is letting the high cost of a more comprehensive portal lead to multiple, limited portals. These are just expensive system integration projects pushed off into the future, and in the short run they also reinforce the convictions of those who do not see "their" data as part of the institutions main trove.

Stale information

Another source of worry is the overwhelmingly static and unidirectional nature of most institutional Web sites. The prevailing model and conception today is the public-relations publication. Highly finished official information is the rule. The quantity is kept down to what can be controlled by one individual. Too-frequent change is thought to risk confusing the audience – a strange anachronism in a world where the hallmark of good information is its close connection to the ever-changing world.

There is very little interactivity in college and university Websites. We just click occasionally to see another page. It takes a considerable leap of faith to think that the design values behind those Web pages will give way to a truly user-centric approach to information once the portal-building project gets under way.

Other models

Portal development has been more active and innovative – and certainly more visible to users in general – in the commercial world. Looking at these can suggest some service objectives that can apply in the academic setting. Others, not surprisingly, can serve as object lessons in what to avoid. And a few give us glimpses of how portals can create whole new worlds, and not just facilitate access to what we already have.

The major shopping sites do a good job of storing identity information, which avoids the need to retype name, shipping address, and credit card number every time we buy a book or a sweater. To be sure, these companies learned the hard way that we do not want that information passed along to other parties. But once there is a mutually-trusting relationship, the storage of identity becomes more than just a convenience; it is powerful acknowledgment of the value of the customer's time – which was that person's motivation for shopping online in the first place.

More guessing games

On the other hand, the idea that a portal should infer a user's interests from recent search and buying history does not look like a useful service. If I buy my mother a travel guide for her trip to Greece on one visit to the online store and come back a day later to look for a Linux reference guide, I am really not aided by the offer to show me more titles about Greece. Cute, but more a sales gimmick than a service.

Sales-solicitation mailings generated by doing business at a Website – and neglecting to un-check the privacy waivers at the bottom of a page is also an example of near-abuse of the portal ideal. Like the preferences-guessing, it is motivated by the portal owner's interest and not by service to the user. The precedent of campus mailbox rooms littered with discarded administrivia mailings is undoubtedly something we do not want to re-create via the portal.

Consolidation

Aside from our feelings about winners and losers in business competition, the consolidation of formerly competing or nearly-similar services can be welcome. Buying used books at Amazon.com is an example. In a different way, the amalgamation of technologies that is occurring rapidly in PDAs suggests a good trend. The device that can be both a cell phone and an organizer has clear advantages for people who need both.

Glimpse of a new world

The unique portal and information environment created by eBay is worthy of a glimpse. The colossal volume of information that drives this online marketplace is entirely participant-provided. Buying and selling is governed by a few simple rules and almost entirely self-regulated.

The eBay business model is based on taking a small fee for each of a very high volume of transactions. As a result, it concentrates on rules maintenance and facilitation of buyer-seller communications. Consequently, the portal design is little concerned with steering users or trying to push information at them, yet vast amounts of information are very easily accessible.

Back to campus

The basic question hovering over the use of portals by colleges and universities is whether we are able and ready to reverse some poor precedents we have set for ourselves so far with Websites, unconnected information systems, and condescending attitudes about the information-seeking abilities of our students and faculty. Are we ready to be organized and committed, behind the scenes, to build unified and user-centered information systems? TW

> **"Arguably, the electronic classroom promotes a student-centered learning model as much as any pedagogical practice. If the teacher is reliable about publishing a course description, a syllabus or calendar, assessment tools and student grades online, then the student has the opportunity to take individual ownership of ... learning in a setting where communication is clear and expectations are understood. "**

Kevin T. McNulty
"Fostering the Student-Centered Classroom Online"
T.H.E. Journal
February 2002

Let us know...

Please contact us if you would like to reprint or re-publish an ***Edutech Report*** *article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Does anyone stock computer and audio/visual machine spare parts anymore? We face the dilemma of needing to get equipment back into use quickly on the one hand and the tricky business of keeping a parts inventory for devices with ever shorter life spans.

A. *While computers, network switches, and data projectors are still too expensive to treat as throw-away items, the idea that we can keep a spare parts inventory, let alone a repair operation seems less and less tenable. This year's SIMMs will be good only as key-chain ornaments next year, even though they are still "new" in the original packages – so stocking them is financially risky. It probably makes more sense to have a few whole-unit loaners to sub for failed devices. The number of these required is minimized by the fast availability of almost any spare part or consumable (like projector bulbs). So, if a machine fails this afternoon, gets swapped out this evening, and repaired two days later the loaner comes back into reserve quickly. The key is "supply chain management"; it is very helpful to know in advance the sources of supply, their time-to-delivery, terms of sale, and general reliability. Warehousing parts seems a very cumbersome way to support repairs in an era of high reliability of hardware and fast supply of parts.*

Q. How much use do the spreadsheets and databases in office software suite products see on campus? The training classes we offer for these are attended, if at all, by secretaries from administrative offices – and even they are not always sure why they are there.

A. *It is pretty clear that word processing, e-mail, and Web access must account for ninety-five percent or more of all software usage at colleges and universities. The reason might be very simple: communication in words is overwhelmingly what the information age is about. Data remain the domain of specialists. Most of us do arithmetic only when it is time to calculate grades at the end of the semester or submit the budget request for next year. But just as likely, we have failed to see the potential in these other tools. Most institutions struggle to support several statistical packages in use, and yet today's spreadsheets have impressive abilities to process descriptive statistics. The database software is an excellent way to store and organize bibliographic data. But these seem well-kept secrets.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

THE
EDUTECH REPORT
The Education Technology Newsletter for Faculty and Administrators

March 2002

Volume 17
Number 12

The Origins of IT Policy

Policies are by nature bi-directional in outlook, responses to experience and guides to future conduct. They are the results of lessons learned, sometimes too late to be helpful in the original circumstances. They are also expressions of our determination to control events, make choices, counteract confusion, and establish or restore hierarchy. Policies come from authority, wielding power and asserting legitimacy. They are often deadly boring – only catching attention when appearing onerous. Often enough they are actually excuses to avoid innovation, curtail discretion, and reign in the mavericks. Sometimes they mark the trail to safety. But usually they rank right up there in popularity with death and taxes.

Information technology has its own peculiar history – and, for that matter, on-going story – of policy formation. The field has not yet outlived its reputation for being unruly and a haven for people perhaps too tolerant of chaos. Nevertheless, rules, standards, and policies are the watchwords of IT now as it starts to move into the mainstream of culture. A survey of policies and the origins can tell us much about where IT is in that transition, what special challenges it faces as we try to make it a normal and permanent part of the lives of colleges and universities, and what lingering resistances work against it.

Governmental regulations and policies are of course the most powerful of the breed, having the force of law and consequences. In recent years laws have tried to catch up with developments in IT, to impose policy on uses of technology that have been controversial or have challenged the status quo. The proliferation of digital documents, images, and music has run into concerted – and large-

continued on page 3

"Higher education has for years been *learned* centric with its inward focus on the institution, the instructor, the contact-hour, the three-hour course, the semester, the two- and four-year degree, and so on. This construct has served well, but higher education is making substantive progress in transitioning from a learned-centric focus to a *learner*-centric focus, meaning that many institutions are taking seriously students' preferences or requirements for integrated, comprehensive, personalizable, online self-service and thereby increasing flexibility in the overall educational process."

William H. Graves
"An Updated Perspective
on the NLII Agenda"
NLII Key Documents,
http://www.educause.edu/nlii/keythemes/an_update.doc

BEST COPY AVAILABLE

NEWSBRIEFS

BACK TO SCHOOL

CIOs willing to invest the time can take advantage of the accelerating rate of practical IT innovation happening in university research labs today. The payoff could be early access to new products or technologies – and real competitive advantage.

Hundreds of colleges and universities offer access to research through their Offices of Technology Licensing. Companies work with schools in three ways: directly funding research; licensing a research-quality technology directly from the school; and funding the graduate students or professors who created the research so that they can start their own companies..

Ken Worthen, "From Their Labs to Your Desktop," *CIO Magazine*, March 15,2002. See: www.cio.com/archive/031502/labs.html.

THE FREE ASSESSMENT SUMMARY TOOL

The Free Assessment Summary Tool (FAST) is a simple online tool that offers teachers an opportunity to assess their students' impressions of their courses and pedagogical methods. Rather than waiting for the end-of-the-course evaluations, FAST allows students the chance to offer constructive feedback about the course throughout the term.

This tool is a valuable resource that opens a proactive dialogue between teachers and students. Interested users may visit the site's frequently asked questions and user tips for more information on the functionality of the software. See www.getfast.ca.

Copyright Internet Scout Project, 1994-2002. http://scout.cs.wisc.edu/.

AAHE'S ELECTRONIC PORTFOLIOS CLEARINGHOUSE

The Portfolio Clearinghouse, recently acquired from Kalamazoo College, is a searchable collection of portfolio projects from around the world. This database is a tool for institutions researching the ever-growing number of portfolio programs in use at institutions of higher education and a resource for individuals looking to the portfolio as a means of assessing student learning on the student, faculty, or institutional levels.

The database may be searched by purpose, media, institution, or keyword (such as "reflection" or "tenure"). The current records focus primarily on student portfolios, both paper and electronic, used for assessment and reflection, although some information on faculty and institutional portfolios is included and will be developed more extensively in the future.

See www.aahe.org/teaching/portfolio_db.htm.

The EDUTECH REPORT is published each month by EDUTECH International (http://www.edutech-int.com), 120 Mountain Avenue, Bloomfield, CT, 06002-1634; (860) 242-3356. President and Publisher: Linda H. Fleit (lfleit@edutech-int.com). Managing Editor: Thomas Warger (twarger@edutech-int.com). Copyright © 2002, EDUTECH International. All rights reserved. This publication, or any part thereof, may not be duplicated, reprinted, or republished without the written permission of the publisher. Facsimile reproduction, including photocopying, is forbidden. ISSN #0883-1327. One year subscription, $97. EDUTECH International also provides consulting services, exclusively to higher education.

The Origins of IT Policy

continued from page 1

ly successful – efforts to establish the legal bases to constrain it. Changes to United States copyright law have been more extensive in the past twenty years than the past two hundred. The Patriot Act, passed in the aftermath of September 11, contains many provisions whose impact on IT practices are unclear at best.

Regardless of their rightness or wrongness , these laws embody the political will to set policy regarding information technology. In the case of copyright, its historical basis as the means to promote creativity ("science and industry") for the public good has shifted in the direction of law protecting commercial property for its own sake. And the wider governmental potential to intervene in electronic communications reflects concern over the extent to which information moving in across networks is fundamentally difficult to monitor. In both instances, the message is clear that IT is viewed as having elements of threat in need of greater restriction, that it has "gone too far" and needs to be brought under closer control.

Restriction and restraint are the policy implications of these laws, as well as others in recent years that did not pass or were overturned. What lesson is it that they represent? What vision of the future guides them? Laws set the outer bounds of policy for IT as indeed for everything else, but with the difference that the field is largely unknown and uncomfortable terrain for governments.

Inside academe

Back on campus, a more settled and stable set of boundary conditions shapes IT policy. These are principally the over-arching policies that regulate the distribution of resources. Rules for research funding played an important role in the growth of IT before it became a form of general infrastructure on campus.

Faculty governance structure has also been very influential in setting IT policy, dating back to the era when computers and networks began to spill out of the research environment and spread across campus. Discussions in the faculty forum often centered on matters of entitlement (who needed or deserved a computer) and later equity (why what was available for some was not available for all). From this context came first the permission and then the mandate that information technology would be accepted on campus – curiously absent much acknowledgment or awareness of non-faculty constituencies for IT. The faculty controlled the terms on which technology would be recognized as part of academic life.

> *Some degree of change can be seen in discussions of distance learning, where many faculty are concerned about whether technology is becoming a threat to their views on education. What policies those arguments will produce is still too early to predict.*

More recently, the requirements of budget and planning cycles – not always coterminous – have dominated the policy environment for IT. How, for example, computers came to every desktop was more a matter of how soon they could be afforded and built into budget models than a decision about their importance for educational mission (a point too obvious to discuss); whether it would take one year or three to fund the purchases got most of the attention.

Where governmental policy-shaping in regard to IT has been sporadic and reactive, the campus context has been until recently more preoccupied with resource issues than debate about the benefits and dangers in IT. Some degree of change can be seen in discussions of distance learning, where many faculty are concerned about whether technology is becoming a threat to their views on education. What policies those arguments will produce is still too early to predict, but they could be the most important to date in academic IT.

IT self-regulation

Traveling one layer more inward, we find ourselves within the organizational space that IT organizations have created. Curiously, here policy is motivated in ways more reminiscent of the "outside world" than the campus, faculty-ruled domain. Acceptable usage policies, intellectual property protections, supplies conservation measures, and lab access privileges look reactive and preventative.

Some of the policy targets have been unclear, poorly rooted in fact, and even over-reactive. An example is the Napster phenomenon. What file-sharing technology's implications for bandwidth would be was unclear as bans targeting Napster went into effect. The situation was desperate,

continued on page 6

Not From C

Where do CIOs come from? Surely not from central casting. Even a quick scan of the résumés submitted to a CIO search tells us that many paths lead to this position. Ten years ago, at an ACM conference for directors of academic computing one of the speakers took an impromptu poll of the audience regarding their Ph. D. fields. Political Science and Chemistry were the winners. But the rest were from all over the lot, including two ornithologists. Of course, those directors were not CIOs. In fact that term was just beginning to be used in academe and referred to unusual positions at a few large universities.

Not many years later the position had become more widely established. For a while there was a trend to combine computing and library operations under one leader, at least on paper. At that time, "CIO" seemed to mean someone capable of spanning what we thought of as technology with the world of books – and we had discovered it was all "information." Interestingly, most of those CIOs were from the library background.

But the current kept running, even as library/computing mergers began to ebb. Today "CIO" has many local definitions but is generally agreed to mean more than a manager or even director of information technology. The role is leader – the person with the vision and associated diplomatic skills to set the course in technology for the institution. The position, wherever it sits in the organization, is the highest point in the hierarchy for someone entirely engaged in IT.

Credentials

What constitutes compelling credentials today for the CIO role? There is as yet no equivalent of the Masters in Library Science for the IT field. True, some library schools now offer "information science" specializations, and perhaps that degree will one day become a major credential.

For a while, primarily in the 1980s, it seemed that a Ph.D. in any discipline might carry a person to the top. But that credential was not sufficient either, as many of that generation of IT leader proved inadequate to the tougher demands of being a senior administrator.

> *Regardless of career starting points and degrees, the résumés of most current college and university CIOs show a record of promotion within the academe sphere. That the path is often not a long one is no surprise given the flatness of IT organization on campuses.*

In short, there is today no degree or certification that stands out as a credential to beat all the others. College and university presidents almost all come up through the faculty ranks. Senior business and finance administrators come from a somewhat wider range of backgrounds and are less likely to have been faculty at the outset. Still, an MBA added to the résumé would have to be counted a credential without peer in the IT realm. Does attending the Seminars on Academic Computing (at Snowmass) qualify as a credential? That might be the one experience most CIOs have passed through on their rise.

Career paths

Regardless of career starting points and degrees, the résumés of most current college and university CIOs show a record of promotion within the academe sphere. That the path is often not a long one is no surprise given the flatness of IT organization on campuses.

The main lines of ascendency come out of the directorships of either the academic or administrative applications groups. While there are some who have come up through networks or systems (core technology fields), those seem to be rather few. But when the careers of most current CIOs got under way, most campuses divided the IT house between "academic" and "administrative." The now common four-part taxonomy of administrative, academic, systems/networks, and user services is a more recent development. It will be interesting to see whether promotions from those fields spread out over time. People from the two newer categories tend to be viewed as too technical or not technical enough – both undoubtedly wrong, unfair, and wasteful stereotypes.

Career success

What makes for a successful career in IT? In the corporate world, if the trade press (which treats successful CIOs like saints) or the résumés of job-seekers are to be believed, the blockbuster project done well is the hallmark experience. But the academic career is more likely to reflect promotion based on the ability to tame the wildness of the IT scene, making it fit better into the conservative cultural mores on campus. IT has still not escaped its former reputation as the black hole that consumes all resources and defies senior administrative intuitions. A person who can slow the money drain and rationalize the place of IT in the academic economy is the campus equivalent to the saints.

For all the brave rhetoric of strategic plans, few colleges or universities have made information technology truly core to the enterprise. Few have joined the University of Phoenix in betting everything on a new, IT-centered paradigm. For the leading technological universities, the IT revolution has been perhaps less remarkable and intimidating, but for almost all the others the imperative has been to fit IT into the game they already knew.

If this version of recent history is at all correct, the career success of CIOs in academic institutions has been built generally on their ability to close the gap in understanding and comfort between the old guard and the new challenges. The academic CIOs whose reputations have been built on aggressive promotion of technology are few, unless we think the strength of resistance they had to overcome makes them the equivalent of Ross Perot in relative terms.

The hard realities of academic politics have imposed a harsh selection on our end of the profession, just as those in the business world have imposed theirs. Nor should we infer from this experience that the nature of academic IT leadership has been settled. While it would be foolish to predict the needs and conditions of leadership in IT on campuses in the future, we would be mistaken to think the evolution has ended. The changes we have seen since computers first came to campus should disabuse us of that thought.

Portfolios of experience

Are there defining experiences or skills that characterize the successful academic CIO? The biggest challenges have been: IT's startling transition from the hobby of the FORTRAN few to the daily necessity (e-mail, the Web, inkjet printing) for everyone; the bruising migration from first-generation administrative systems to the second – and then the steeply more difficult climb from the second to the third; and the rough-elbowed work of gaining a place for IT at the high table where the budget gets divided.

> *If this version of recent history is at all correct, the career success of CIOs in academic institutions has been built generally on their ability to close the gap in understanding and comfort between the old guard and the new challenges.*

These have all been traumatic experiences in the second half of the IT era. Within a year of Mosaic bursting out, everyone had to have a networked computer running the current, windowed operating system – and on a color monitor. The clerical staff who were only mildly shaken to learn their first database system environment became all but unruly when the next system came in. Their bosses went ballistic over the cost and disruption of going to the current generation of systems. But no battle was more gory than the one to convince top administrators that IT had to be represented at the cabinet level else be hopelessly underfunded. Those who passed the test of these battles have truly earned their positions. But what is the message for those still coming up?

Winning the peace

Nobody will believe all the difficulties are behind us. And it would be wrong to fall into the "golden age" trap when looking back over IT history. Academic institutions now are looking for IT leadership with legs for the long run. The challenge now is contribute as an equal partner in leadership forums where the future of institutions takes shape, to work at the long table where everyone now has a PDA.

And so what are the credentials, career paths, and defining accomplishments by which we will recognize new CIOs? Chances are that the criteria will widen and diversify. (Maybe that even means social diversification?) Knowing how to "listen to faculty" or making sure big software vendor X doesn't fleece us seem quaint now as distinctive traits and job winners.

Some questions to watch include whether IT professionals from outside the college and university level can break in; whether line managers of IT services continue to compete well for the CIO spot; whether our institutions will get serious about working with the changes IT has made possible for their nature and mission – and take interest in those who see differently. **TW**

BEST COPY AVAILABLE

The Origins of IT Policy

continued from page 3

but the reality behind the problem was not yet clear. And on the legal and ethical fronts, the discussion of the wrongness or rightness of Napster never got off the ground – students just reacted in outrage to what they saw as IT policy inconsistent with the previous norm of laissez-faire.

The unwritten context

IT has now been on campus long enough to be subject to unwritten rules. The network managers' public relations nightmare over Napster happened because they did not realize how constrained they had become due to unwritten and ungoverned expectations. The clientele that would stay peaceable through network outages due to equipment problems and other technical lapses was surprisingly resistant to preemptive policy, even though it was presented as necessary to keeping the network open and traffic moving. The policy was considered out-of-bounds.

From a different quarter, there is now substantial unwritten requirement that IT administration be planful. Failing to have new computers in place for faculty before Labor Day is now unforgivable. Failure to have (most) classrooms equipped for "smart" technology is also viewed as mere incompetence on the IT organization's part. Getting computers into faculty offices was a faculty senate issue; equipping the classrooms is now seen as essentially on a par with making sure there are enough chairs – surely not something in need of decisions, or extraordinary funding.

IT policy now needs to meet a general expectation that plans are being made, needs anticipated, priorities aligned, and details squared away. The good news is that IT has crossed the bar from storm to calm and routine; the bad news is that the users think the need to debate resources and priorities has gone away.

Senior administrators have come to expect that the bad old days of nasty surprises (basically, all surprises) have also rolled to history. While it is nice to be viewed as an area where normalcy is the norm, we seem to be forgetting that IT remains unlike almost any other aspect of academic existence in unpredictability and change. As a result, policy-making in IT is now heavily burdened with guesswork about users' expectations and requires far greater attention to "marketing" and expectations-management than in the past.

> *The good news is that IT has crossed the bar from storm to calm and routine; the bad news is that the users think the need to debate resources and priorities has gone away.*

Policy taking shape

It is not true that all the turmoil is behind us. Distance learning is the most obvious instance of a kind of storm just starting to form – even at colleges and universities that have been sailing those seas for a while. A search through the literature on distance learning tells a tale: the greatest number of articles and books on the topic deal with definition, theory, and practice. A fair percentage of those are overt works of advocacy for this form of education. A scan for online policy statements about the nature and purposes of distance learning programs at the institutions that offer them turns up few hits. Registrars' Web pages, often loaded with myriad rules for enrollments, transfers, and credits-counting are strangely silent about distance ed courses, which surely some of their students are presenting for credit.

The real battle has yet to be joined. A substantial discussion about fundamentals of education is still to come: what does "teaching" mean in this new context? What new social construct is necessary for education among dispersed individuals? Do we even need one? How many faculty and institutions will be needed in the future? Will our past ideas about assessment and evaluation serve us in the new era?

But there are even more pressing questions to ask regarding why the fundamental discussion is lagging. Who out there is paying attention? Many residential campuses seem to think they can sit this one out. What are the opportunities for change, the risks of making strategic mistakes, and the consequences of doing nothing? In short, what considerations will finally prompt the need to make policy?

The challenge today for IT policy makers is to figure out how to lead their institutions to look at the high-stakes issues ahead of us now that the base in technology is in place. The effects on education after colossal investments in technology are still uncertain, partly because innovation does not happen directly and immediately. But we know also that change has to be made to happen. Putting what we have learned together with views on how we would like to make education different and better as a result is hard work, but isn't it where we want to situate ourselves – neither driven by external pressures nor coasting along complacently?

Policy potentials

Agreement on IT's status as a topic in tenure and promotion of faculty is a policy matter that has been hanging fire for twenty years or more. Two basic propositions are in circulation, though rarely confronted. Faculty involvement in IT has to be one of these: an institutional priority worthy of recognition and weight as an objective and criterion in its own right, or it needs to prove itself by supporting one or both of the key areas in which we evaluate faculty: instruction and research. Have we failed to resolve this dilemma because it is difficult, and we are unsure of the choice? Or has the need to make policy on this point not become clear, and that is why we do not decide the matter?

Here is one that could be explosive: what are the intellectual property rights and interests of students in the coming era? It used to be that the professor was the only one who saw student work. Setting aside the matter of whether faculty ever appropriate student work for their own use, the issue is that now it is increasingly common for student work to be published and collected. It is not at all unusual to find student Web journals still on college and university servers years after the course is over and the student has graduated. For the most part, these are simply abandoned and forgotten; they are still out there merely because nobody is cleaning away old files. But the fact that student work does circulate and persist in ways unimagined until recently deserves recognition and discussion.

On a brighter note: the growing use of student work portfolios is a good start in the direction of thinking about why last semester's work shouldn't be discarded and forgotten. The idea of keeping students' work and encouraging them to reflect on how an education develops and grows should have occurred to us long ago. The writable CD has jogged our awareness, and we can start thinking about how to help students value the work they can carry along as they go.

And what role will semi-instructional staff have? Elementary schools have been transformed by the counselors and special-purpose teachers now part of the "team." At the college and university level, a different team is slowly taking shape: instructional designers, IT trainers, consultants, and student technology assistants. The age of the solo instructor is beginning to fade away. But what are the cost implications of this trend? If the elementary school is any indication, the cost can and will be borne. What status will these jobs carry? Though their work is mostly not in classrooms, librarians in some cases are counted as faculty by virtue of their instructional contribution. Some of the IT staff, designers, and consultants are already paid as much as faculty.

Academic policy making, especially in IT, has a history of coming in fits and starts. We make policy when we have no other choice, or after something bad has happened – hardly a rational way for us to govern and manage ourselves. The better way must be to open our eyes and look back and then forward. TW

> **"Software development requirements of gathering, analysis, design and coding are all discovery-based exercises that lack absolute physical laws of nature to impose constraints, boundaries or guidelines. They are uniquely human, ephemeral activities that are unpredictable, immeasurable, ill defined and non-repeatable. There are rules of thumb, best practices and experience to guide the undertaking but nothing can be 'proven' until the software runs."**

Ed Carroll
"Lightweight and Agile Software Development"
Ubiquity
Volume 3, Issue 4; March 12-18, 2002; www.acm.org/ubiquity

Let us know...

*Please contact us if you would like to reprint or re-publish an **Edutech Report** article. You may e-mail us at reprints@edutech-int.com or call us at 860-242-3356. We are also glad to have comments or questions from readers.*

Need a consultant? EDUTECH International provides consulting services exclusively to colleges and universities. See our Website at http://www.edutech-int.com/.

EDUTECH RESPONDS

Q. Are "Service Level Agreements" really worthwhile? They sound like they might be just another bureaucratic exercise.

A. *Of course, any form or policy that does not meet real needs, and bring real benefits can be labeled "bureaucratic." Service Level Agreements (SLAs) are useful if they meet the needs of both parties and actually make a difference in the quality of service. For the person, department, or administrative unit receiving the service, the agreement is useful if it clarifies standards that were not clear or maybe didn't exist as specific commitments. For the service provider there are benefits also. An SLA is the basis for a performance metric: it tells whether goals are being met and, if not, points to what needs to be changed. And, it helps manage the users' expectations. If the SLA says that calls placed after 5:00 pm are returned by 10:00 the next morning, that means staff are not being called at home in the evening. If that was what was agreed, that is the rule. For senior administrators, the SLAs can identify and document resource issues. If an SLA negotiation establishes the need for helpdesk service throughout evening hours (because, for example, classes are in session and cannot tolerate service outages), then the resulting request for a staffing increase has a good foundation and is more likely to be granted.*

Q. Several of our academic departments have put in budget requests for servers. We are concerned that these servers would become a support liability because the departments won't be able to manage them properly. Would we be right in blocking those requests?

A. *This is a difficult call because there are problems in departmental computing facilities that servers can help resolve. Labs with a long list of application software or huge volumes of data are good candidates for servers. Those facilities now probably have multiple computers that staff try to keep configured by hand methods, such as re-installing a disk image every time there is a significant problem. The keys to using servers in these departmental settings are: good central support of servers (for OS upgrades and patches, configuration, security provisions), clear rules governing usage, and – as always – good training for department staff. If those conditions can't be met, or if the departments don't agree they are important, you might not want to approve acquisition of the servers.*

EDUTECH INTERNATIONAL
Providing Information Technology Services to Higher Education

EDITORIAL OFFICES
120 MOUNTAIN AVENUE
BLOOMFIELD, CT 06002

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
Bloomfield, CT
Permit No. 117

printed on recycled paper

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

ERIC

NOTICE

REPRODUCTION BASIS

☒ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").

EFF-089 (9/97)